

NetworkWorld

August 20, 1999 Volume 15, Number 20

www.network.com



Practical VPN Deployment: The Next Step

Practical answers to real-life questions

You know what VPNs promise: cost savings, business efficiencies and improved relationships with your partners. But once that's understood, are you prepared to deal with the technical issues of planning a full-scale VPN deployment enterprise-wide? Integration issues, scalability, site-to-site viability, security, mission-critical performance and service-level guarantees are just a few questions you should be considering.

Practical VPN Deployment: The Next Step is a one-day seminar designed to give you a clear understanding of these technical issues and how to meet them head on. Seminar director Eric Zines, Senior VPN Consultant with TeleChoice, Inc., will explore the greatest challenges of VPN deployment, and provide solutions for doing so successfully. He'll also share the success stories of early adopters, including their trials and tribulations on their way to success.

6 Reasons Not to Miss This Seminar

1. Understand the most common pitfalls in building an enterprise-class VPN, and learn to avoid them.
2. Learn how others are growing their VPN pilots to support mission-critical applications.
3. Understand how to grow your VPN to match your performance requirements.
4. Learn to integrate existing security measures with your VPN plans.
5. Understand how to deploy the different types of VPNs: remote access and site-to-site.
6. Have your key questions answered by the leading VPN vendors and service providers.

1999 Seminar Tour

New York, NY • Hartford, CT • Research Triangle Park, NC • Miami, FL • San Francisco, CA • Irvine, CA • Chicago, IL • Detroit, MI

SPONSORED BY:



GTE



If you are interested in sponsorship opportunities, please contact Andrea D'Amato at (508) 820-7520 or adamato@nww.com

Register today for the
seminar nearest you!

(800)643-4668

www.nwffusion.com/seminars/vpn

VPN: WRAP

See inside
for complete
details!

VPN Overview, Terminology and Concepts

While the definition of "VPN" is becoming clearer, the term still means different things to different people. This introductory section of the seminar will build a foundation for understanding VPNs, and describe the solutions that will be discussed throughout this day.

The Many Flavors of VPNs

• IPSec, PPTP, L2TP and MPLS VPNs

VPN Benefits and Advantages

- The Business Case for VPNs
- VPNs vs. Frame Relay
- Unique VPN Advantages

VPN Implementation Update

- Who's Using VPNs and How?
- VPN Implementation and Performance Concerns

VPN Products, Services and Solutions

Making informed choices about your VPN requires broad knowledge of the options. In this module, we will explore the wide variety of available VPN products and services, and discuss the strengths and weaknesses of each.

VPN Product Features and Configurations

- VPN Routers, Firewalls, Gateways and Appliances
- Remote Access VPN Gear
- VPN Server Software
- VPN Client Software
- Security Options
- Cryptographic Accelerators

VPN Services and Network Options

- Network Architectures
- Remote Access Service Descriptions
- Site-to-Site Services
- Extension Options
- Value-Added Services
- Secure Hosting Services

Phoning and Support

Writing a VPN Services RFP

Do-It-Yourself VPNs vs. Outsourced VPNs

Even as the opportunities to enter the reach of your VPN grow, the question still exists of whether you should build, deploy and manage it yourself, or contract with a service provider to buy an integrated solution. In this section, we'll cover the issues that will affect your decision.

- Hardware, Software and Transmission Costs
- Management Issues
- Training Issues
- Security Concerns
- Cost Comparisons

VPN Network Integration

VPNs almost never exist in a vacuum. In fact, an overwhelming 85% of VPN implementers also have some other WAN solution in place. This section explores options for integrating existing network components into a VPN.

Integrating VPNs with Frame Relay and other WANs

- Fortify Upgrade, Phased Migration or Peaceful Coexistence?
- The Right Network for the Right Application
- Adding Remote Access to Legacy WANs

Implementing VPNs for Voice and Video

- Convergence Strategies
- Multimedia Requirements and Key Issues
- Standards and Product Solutions

Security Integration

If you have an Internet connection or a remote access solution, the choices are that you also have some type of security measures in place. Many network managers struggle with integrating these existing security functions into a new VPN framework. In this module, we'll focus on the steps necessary for preserving your security investment while expanding VPN functionality.

Authentication Solutions

- Integrating existing RADIUS with VPNs
- Implementing LDAP, PKI and Digital Certificates
- Tying Authentication to Novell and NT Directories
- Tokens and Biometrics

IPsec and IPsec

- Start Over with IPsec or Integrate with PPTP

Firewalls and VPN functionality

- Existing Firewalls as VPN Solutions
- Firewall Upgrades
- Firewall-Based Authentication and Access Control

Mission-Critical VPNs

The requirements for a mission-critical VPN may be quite different from what is acceptable performance in an Internet connection. In this section we'll explore the requirements for "mission-critical" network performance, and discuss the technologies being deployed to improve application performance on TCP/IP networks.

All Applications are Not Created Equal

- Establishing Performance Criteria
- Estimating Bandwidth Needs
- The Implications of Multimedia VPNs
- Performance Impacts of VPN Technologies

Differentiated Services and RSVP

- Utilizing Performance-Tuning Tools
- Balancing Performance and Cost

Mission-Critical Support

- Support Staff Requirements
- Support Processes
- Implementing a Disaster Recovery Plan

Scaling VPN Pilots

Many VPN users are moving beyond the pilot phases with their VPNs to full-scale implementation. This section will look at growing a VPN from pilot to company-wide usage.

Deploying Enterprise-Scale Remote Access

- Growing Your PPTP Solution
- Migrating from PPTP to IPsec
- Specialized Products for Scalable Remote Access
- Designing a Scalable IPsec Solution
- Strategies for Streamlining User Set-Up
- Supporting Telecommuters with VPNs

Transitioning from Remote Access to Site-to-Site VPNs

- Using a Single Network for Remote Access and LAN to LAN
- Special Considerations for Scaling WANs

VPN Performance Guarantees

Scaling a VPN for enterprise-wide mission-critical use requires a level of confidence in the underlying network on which the VPN is built. In this seminar section, we'll look at the guarantees that are available with VPN products and services.

Network Performance Guarantees and Service Level Agreements

- Negotiating SLAs
- Standard SLAs Available Today
- Availability, Latency and Throughput Guarantees
- Mean Time to Repair
- Differentiated Services and MPLS for QoS and CoS
- Writing Internal SLAs
- Understanding the SLA Fine Print

Security Guarantees

- Bonds and Insurance Offerings
- Security Evaluation and Testing
- Training Employees

VPN Success Stories

With the overwhelming popularity of VPNs, the industry is producing many successful VPN implementers. We'll look at real-life case studies, and explore what the early adopters have done. Learn from the successes and mistakes of others.

Learn from the Leader



Eric Zines

TeleChoice

As a Senior VPN Consultant for TeleChoice, Eric Zines focuses on the rapidly changing VPN market. Along with tracking and interpreting trends for TeleChoice's VPN.com Web site, Eric also provides consulting services to VPN service providers and vendors.

Prior to joining TeleChoice, Eric worked for a major carrier in a number of different roles, the last being Product Manager for Internet Services. He also consulted with Fortune 500 customers and advised them on their internet strategies. Eric also worked as an applications engineer on some of the first ATM switches, and network-enabled applications.

presented our sold-out VPN '99 seminar last spring, and has served as keynote speaker for numerous U.S. and international VPN seminars.

Registration Fee: \$450

Take-Home Materials

• Comprehensive Seminar Workbook which will serve as an invaluable reference during the class and back at the office, and VPN White Paper.

• Exclusive Network World VPN CD-ROM resource including related articles, live links and vendor information.

Note: if you can't attend, call and order this informative and useful take-home materials kit for just \$99.

On-Site Presentations

Let us bring this seminar to your company for a customized group presentation. Call Bill Bernhart at (508) 609-7506 for more information.



VPN: WRAP

SAVE with our team discounts

Register 2 people and save \$50 on each registration
Register 3 or more people and save \$100 on each registration
And every 4th person registered attends FREE!



1999 Seminar Tour

New York, NY, September 23 • Hartford, CT, September 24
Research Triangle Park, NC, October 13 • Miami, FL, October 14
San Francisco, CA, November 3 • Irvine, CA • November 4
Chicago, IL, December 8 • Detroit, MI, December 9

Register Today (800) 643-4668 or visit www.nwfusion.com/seminars/vpn

The newswatch of enterprise network computing

NetworkWorld

August 30, 1999 Volume 16, Number 35

The network portal: www.nwfusion.com

As the heat goes on... Microsoft stalls IPv6 progress

Net managers scramble to keep server gear cool.

BY DENI CONNOR

Let the temperature get too high in your server room and your gear won't have a snowball's chance in... well, let's just say you're going to have problems.

Network professionals don't need to be reminded of this risk. However, so many server rooms have had their cooling systems pushed to the brink this summer by the nation's seemingly perpetual heat wave that many an administrator has exhausted his or her bag of room-cooling tricks (see graphic, page 77).

"We have a location in Needles, Calif., where temperatures reach 115 to 120

degrees," says Tony Fortwengler, director of IS services at Southwest Gas Corp. in Las Vegas, another notorious hot spot. "Because of that, we are more sensitive to temperature and have an IT staff person who goes to facilitate management meetings to make sure our company pays attention to the weather."

See Heat, page 77



MobilStar's David Jackson wants his servers at a constant 68 degrees.

Microsoft stalls IPv6 progress

Next-generation IP protocol backers seek out Gates.

BY CAROLYN DUFFY
MARSAN

Microsoft is dragging its feet on integrating IPv6 — an upgrade to the standard Internet communications protocol — into future versions of Windows, prompting Internet leaders to launch a behind-the-scenes lobbying campaign directed at Bill Gates.

Proponents of Internet Protocol Version 6 have been working over the past month to set up a meeting between Vint Cerf, one of the creators of the Internet and honorary chairman of the IPv6 Forum, and Microsoft Chairman Gates to discuss the company's support for IPv6 in upcoming

products. No date for the meeting has been set, but IPv6 supporters are hoping Cerf can convince Gates to commit his company more definitively to the upgrade.

Any extended delay in Microsoft's integration of IPv6 in Windows 2000 would be a setback for the Internet Engineering Task Force (IETF), which for six years has been working on an upgrade to the 20-year-old IPv4 protocol.

The IETF has developed and tested a core set of IPv6 standards and has established a working group to promote widespread usage of them. IPv6 offers many benefits to enterprise customers, includ-

See IPv6, page 19



Vint Cerf, honorary chairman of the IPv6 Forum, will appeal directly to Microsoft Chairman Bill Gates in an attempt to get a firmer Microsoft commitment to the future Internet communications protocol.

More Online

- An IPv6 audio primer.
- The IETF's IPv6 working group.
- The IPv6 Forum.

4433 IP
www.nwfusion.com

Dell adopts online support; Compaq soon to follow

BY DENI CONNOR

AUSTIN, TEXAS — Compaq and PeopleSoft customers will soon be able to take advantage

of self-service technical support software that the vendors claim will automatically diagnose and fix problems, saving companies help desk time and

money.

The move follows Dell's introduction of similar services last week.

The offerings are the latest indication that so-called "e-support" services are gaining marketplace momentum. E-support is a method of communicating with employees and customers over the Internet about their computer problems. Experts say the services will enable companies to employ fewer customer support representatives.

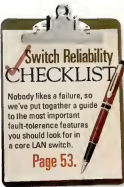
According to International

Data Corp. in Framingham, Mass., the e-support market will grow fivefold from last year's total of \$1.9 billion to \$10.4 billion by 2002.

"E-support software is a real boon to customer support because it automatically fixes many mundane problems and lets customer support technicians save time," says Tony Adams of Dataquest, a consultancy in Lowell, Mass.

Last week, at its first user conference in Austin, Texas,

See Support, page 77



Nobody likes a failure, so we've put together a guide to the most important fault-tolerance features you should look for in a core LAN switch.

Page 53.

"Two and a half years ago, we took one of the most mission-critical systems in the U.S. and put it on Windows NT. It was a bold decision at the time. But it's helped us lower our cost per transaction by two-thirds. In fact, I've had a number of my peers who had gone to UNIX say that they wished they had done what we did."

*Steve Randlich, CIO, Chicago Stock Exchange
on choosing Microsoft® Windows NT® Server 4.0 over UNIX*



howstevedidit.com

Where do you want to go today? **Microsoft**

This One



XP81-85Z-TT4J

When it comes to speed, this printer
PUSHES the ENVELOPE.
Also the letter, legal, and 11x17 sheet.



PAGEWORKS™ 25
\$1,499

There's no question, it's a fast-paced world. And it's only getting faster. Whether we're waiting for our food or waiting for our printer, we want it, and we want it now. Slow and steady no longer wins the race—we're talking fast, fast, fast.

Well, finally, there's a laser printer designed to keep up the pace, the Minolta PageWorks™ 25 printer. In fact, at a blistering 25 pages per minute, this thing sets its own pace, leaving all the other sub-\$1,500 printers totally in the dust.

Okay, so it's fast, but what else, you might be asking. Well, the Minolta PageWorks 25 printer is also the most expandable printer in the sub-\$1,500 category, easily upgradable from a 750-sheet paper capacity to 3,750 sheets. It features 11"x17" paper handling and even has 5- or 10-bin mailbin capabilities. Oh, and did we mention power? With its 90MHz Power PC processor with QuickPrint®, the Minolta PageWorks 25 printer pushes the envelope even further. For more information or a free CD-ROM, call 1-888-264-6658, or visit us at: www.minoltaprinters.com



PageWorks BL 3199



PageWorks BL 1199



Color PageWorks PS 5198

© 1999 Minolta Co., Ltd., Osaka, Japan. PageWorks is a trademark of Minolta Co., Ltd. QuickPrint is a registered trademark of Pentium Systems Corporation. All other trademarks or registered trademarks are the property of their respective companies. Information herein is subject to change without notice. Free Product Info enter NWinfoXpress #75 online @ www.networkworld.com/infoXpress



MINOLTA

THIS WEEK
ONLINE



Keeping Current.
How much would you pay for a domain name? If you could get a name for \$75 that's just as good as the one somebody else is selling for \$75,000, would you? Fred McClimans discusses the domain-name market and how to save bucks. **DocFinder: 4436**

Is death too kind?

The news last week that the suspected author of the Melissa virus confessed to writing it stirred some strong emotions among Network World Fusion users as to just what should be done to him: land to Microsoft for writing software that he could exploit. What do you think? Jump into the discussion. **DocFinder: 4437**

Water Cooler.

Tim Berners-Lee may have invented the Web, but he didn't think up hypertext. While Berners-Lee was still in disputes, Ted Nelson was making plans for a global hypertext system. Last week, after 30 years, he released the software for his Xanadu system. Network World Online Editor Adam Gaffin takes a look at this noble failure. **DocFinder: 4438**

Vendor profiles.

Need background information on Linux vendors Red Hat Software and Caldera Systems? We've added them to our Industry Stocks page, which means you can get links to recent Network World articles about them, along with product and financial information. They're among the scores of network vendors for which you'll find profiles. **DocFinder: 4439**

**How to get onto
Network World Fusion**

Click on Register on the home page and follow the instructions. Subscribers keep your NW number — highlighted on the front cover's mailing label — handy during registration. Nonsubscribers must fill out an online registration form.



NetworkWorld

Table of Contents

AUGUST 30, 1999

NEWS

- 6 Cisco goes shopping for optical gear.
- 8 Hacker ruse can exploit Microsoft's ActiveX Controls.
- 9 Cisco targets SNA users with new router features.
- 10 3Com, Siemens kill joint LAN telephony venture.
- 12 Cabletron to unleash wireless LAN products, ISP gear.
- 14 Frame Relay Forum renews its purpose.
- 15 New tool blocks wily electronic commerce hacker tricks.
- 16 The Scoop: Why IPv6? Let us count the 'whys'.

INFRASTRUCTURE

- 17 Check Point software bolsters LAN security.
- 20 Wireless LAN group targets interoperability.
- 25 Dave Kearns: Active Directory — agree to disagree.

CARRIERS & ISPs

- 31 Telecommunications giants are spreading venture seeds.
- 38 Daniel Briere and Christine Heckart: What organized

crime and convergence have in common.

ENTERPRISE APPLICATIONS

- 39 Sybase warns target electronic commerce world.
- 39 Utility helps Exchange shops track, audit e-mail use.
- 42 Health care group offers electronic commerce service.
- 46 Scott Bradner: When parallel service is not there.

TECHNOLOGY UPDATE

- 47 New specification will help secure LANS.
- 48 Gearhead: A guide to the Common Gateway Interface.

Special Focus STORAGE-AREA NETS

How to cook up a SAN. Users offer their favorite recipes. Page 28.

Columnist Scott Bradner says if it's true that one is known by one's enemies, look at who is fighting to force AT&T to open its cable infrastructure. Page 46.

MANAGEMENT

- 64 Hot network skills: Unix and network integration experience will let you write your own ticket.

OPINIONS

- 50 Editorial: Peccing into the future via a network crystal ball.
- 51 Blair Levin: 'Lite' regulation — Tastes terrible, awfully filling.
- 51 Howard Anderson: R&D breakdown is a driving force behind acquisition fever.
- 78 Backspin: Crazy theories and equivalent values.
- 78 'Net Buzz: Disappearing, Inc., pushes 'disappearing ink' for e-mail.

Net Know-It-All	Page 16
Ask Dr. Internet	Page 47
Message Queue	Page 50
Editorial and advertiser indexes	Page 76

HOW TO CONTACT US

WRITE: Network World, 161 Worcester Road, Framingham, MA 01702. CALL: (508) 875-6000. FAX: (508) 875-3407. E-MAIL: network@nw.com. **CIRCULATION:** CALL: (508) 875-7444. FAX: (508) 270-8893. E-MAIL: awcnet@nw.com. **STAFF:** See the masthead on page 16 for more contact information. **REPRINTS:** (717) 399-1900. **E-Mail:** rry@mcgraw-hill.com

FEATURES



RELIABILITY CHECKLIST

A guide to the features that promote reliability and availability in a core LAN switch.

Page 53.

George Sullivan of Northern Greenwich tests the failure capabilities in his switches on a regular basis.

Delano Technology's e-Business Interaction Suite merges e-mail and the Web. Page 57.

Toshiba's Magna 7000 is an enterprise server you can grow into. Page 58.

For all-around security auditing, BindView's Network Security Suite beats three other programs and takes home our World Class Award. Page 61.



NEWS BRIEFS, AUGUST 30, 1999

Rules would rouse 'cybersquatters'

The group charged with overhauling key Internet management duties last week gave its initial approval to a procedure for handling disputes over top-level domain names and Internet addresses. The Internet Corporation for Assigned Names and Numbers (ICANN) approved the procedure in a meeting of its interim board in Santiago, Chile. The procedure aims to deal with the problem of cybersquatting, where one company or individual lays claim to an Internet address — such as www.companyx.com — that another entity also claims a right to use. The approved procedure, which will be posted for public comment, prohibits "bad faith" or "abusive" attempts to lay claim to Internet addresses. It also provides a mechanism whereby Internet addresses can be cancelled or transferred when a blatant violation has taken place.

Nortel acquires Web call center firm

Nortel Networks last week bought some help in its effort to unify call centers with electronic commerce by purchasing Periphonics Corp., a maker of interactive voice response (IVR) systems. The price was \$436 million in stock. Starting with classic IVR systems that direct callers to "press 1" for one thing and "press 2" for another, Periphonics has moved on to develop a platform called PerWeb that gives companies an applications development environment to design customized transaction services for telephone-based and online commerce.

Novell's top marketer quits

For years the mantra in "NetWare Nation" has been that most of Novell's competitive difficulties — especially vs. Microsoft — can be traced to one factor: lackluster marketing. That rap has begun to fade somewhat since the arrival in 1997 of CEO Eric Schmidt and a concurrent rise in the company's financial performance. Whatever image-buffing ensues from here, however, will need to be accomplished with new marketing leadership, as Novell last week announced the resignation of Senior Vice President John Slitz. The reason? That ubiquitous and often telling "to pursue other opportunities," according to a press release from Novell.



Novell's Slitz calls it quits.

Bell Atlantic keeps eye on the ball

Despite losing a bidding war for AirTouch in January, Bell Atlantic still covets the wireless carrier's holdings in the western U.S. Published reports say Bell Atlantic is angling

to buy that western network from Vodafone AirTouch. Vodafone formed the company when it bought AirTouch out from under Bell Atlantic for \$56 billion. If Bell Atlantic gets what it wants, the carrier will own a wireless network that stretches from coast to coast and will rival AT&T and Sprint for coverage area. Vodafone, based in London, was more interested in AirTouch's European wireless networks.

Professors taking no Y2K chances

Conventional wisdom among the technologically savvy may hold that the Year 2000 problem is overblown, but that doesn't mean they're all anxious to prove the point by being airborne on Jan. 1. In fact, a poll released last week showed that 41% of 209 computer science professors asked said they would refrain from flying on New Year's Day. The survey's author says he is not surprised.



"It's one thing to have confidence; it's another thing to aviate," says Thomas Kelly, co-director of the Siena College Research Institute of Loudonville, New York.

Netrix, OpenRoute to merge

Netrix, of Hemden, Va., and OpenRoute Networks — formerly Proteon — of Westboro, Mass., last week announced that they have signed a letter of intent to merge. Under the arrangement, Netrix shareholders will retain their shares, and each share of OpenRoute common stock will be exchanged for one share of Netrix common stock. The deal is valued at \$114 million and will combine Netrix's packetized voice and data network switches with OpenRoute's Internet access routers. The merger is expected to close by year-end.

Printing for dummies

Anyone who's ever been frustrated using fax machines, e-mail attachments or overnight mail to get a computer-generated document into someone else's hands may be intrigued by the idea of long-range printing over the Internet, which Microsoft and Hewlett-Packard are turning into a reality. The two companies last week said they will offer a beta version of Internet Printing Protocol (IPP) 1.0 as a native component of the third beta release of Microsoft's Windows 2000 Professional and Server operating systems. Furthermore, Windows 95, 98 and 98 Second Edition users can download a final version of the related Internet Printing Services client at <http://windowsupdate.microsoft.com>

Cisco goes shopping for optical gear

BY JIM DUFFY

SAN JOSE — By plunking down \$7.4 billion on two start-ups that haven't made any money, Cisco is showing its resolve to become one of the dominant telecom companies in the 21st century.

Cisco last week said it would buy privately held Cerent of Petaluma, Calif., and Monterey Networks of Richardson, Texas, for \$6.9 billion and \$500 million in stock, respectively. Cerent develops SONET transport products that combine add/drop multiplexing (ADM),

million. In fact, Cerent has never posted a profit since starting business in 1997.

The acquisition of Cerent is Cisco's largest ever, dwarfing the \$4 billion Cisco paid for StrataCom in 1996.

But such is the price to be paid to attempt to lead in the Internet economy. Also, Cerent was about to go public just before the Cisco offer and many, including Cisco, were anticipating the company's value to skyrocket, similar to the stratospheric rise of Juniper Networks. Juniper went public three months ago

PROFILE: CERENT

Founded:	January 1997
Headquarters:	Petaluma, Calif.
Employees:	210
Revenue:	\$10 million, first half 1999
Investors:	Cisco, Kleiner Perkins Caufield & Byers, Michael Dell
Products:	SONET optical transport system combining TDM, ADM, cross connect, packet and cell switching

digital cross-connect and time division multiplexing (TDM), as well as packet and cell switching. Monterey builds optical cross-connect technology that is used to increase network capacity at the core of an optical network.

By acquiring these companies, Cisco enters a business sector — optical transport — currently dominated by the old-guard telecom equipment suppliers. Optical transport will be a \$10 billion market by 2002, Cisco predicts.

More importantly, Cisco now joins the ranks of Lucent, Nortel Networks and Telabs as a supplier of SONET-based transmission gear for inter- and local exchange carrier networks. But Cisco's newly obtained technology is optimized for transport of multiservice traffic — voice, data and video — while the incumbents' equipment is tuned for voice.

The price Cisco is paying for Cerent is a steep one. Cerent lost \$29 million in the first six months of 1999 on sales of \$10

and is now valued at \$11 billion.

Valuations aside, Cisco now has another valuable weapon with which to battle the entrenched telecom giants for the core of service provider networks.

"It's a key piece that's been missing from Cisco. It lets them play directly against the Lucent, the Nortels and the Alcatels for a core optic offering," says Craig Johnson, principal analyst at The FITA Group in Portland, Ore. "It's key for them to really go into the regional Bell operating companies and say, 'Look, we can provide pretty much anything that Lucent and Nortel can offer.'"

Cerent has more than 100 service provider customers nationwide, including current Cisco customers Qwest and Frontier. Monterey has no announced customers.

With these acquisitions, which are expected to close at the end of October, Cisco now has 900 employees focused on optical internetworking. ■



Q

How can my business race ahead on the 8-way highway?

The Compaq ProLiant 8000 and 8500 servers have redefined industry-standard technology, yet again. With its revolutionary new 8-way scalable architecture, Compaq brings enterprise customers a new generation of powerful ProLiant servers.

They deliver breakthrough scalability, higher levels of reliability and unbeatable price performance for NonStop® e-Business Solutions. They're backed with business-critical Compaq services, tailored to your needs. And, since Compaq co-developed the crucial ProFusion® 8-way architecture with Intel®, no one knows it better. For all the powerful advantages of the 8-way revolution—breakthrough performance, scalability and reliability—there's just one road to take. Details? Visit www.compaq.com/8-way, or call 1-800-AT-COMPAQ.



COMPAQ Better answers.™

Hacker ruse can exploit ActiveX Controls

BY ELLEN MESSMER

WASHINGTON, D.C. — If you're using Microsoft Outlook Express in Internet Explorer 5.0 for e-mail and you don't disable the ActiveX Controls feature, someone could send you a message that could wipe the files off your hard drive or put a new file onto it.

Last week Bulgarian computer consultant Georgi Guninski showed how the deceit can be done by embedding malicious script in an Internet mail message that can delete files while the victim is reading the message with Microsoft Outlook Express. This exploit takes advantage of ActiveX Controls, Microsoft's technology for executing a program on the Web, and doesn't appear to work with Internet Explorer 4.0.

"What Georgi did was create the 'nuclear e-mail message,'"

claims Richard Smith, president of Cambridge, Mass., tools developer Phar Lap Software, who has kept close track of the security implications of ActiveX since Microsoft started developing the technology in the early 1990s.

"We have been anticipating something like this for years. In theory, it's no longer safe to read e-mail if you use Outlook Express," he says. "When you hear about browser exploits, think e-mail, too."

In his presentation at the Usenix security conference last week, Smith explained how Guninski's play works. The Outlook Express e-mail viewer reads HTML by default with Internet Explorer 5.0.

Guninski's "nuclear e-mail" takes advantage of an ActiveX Control called "Object for constructing type libraries for scripts" or "Scriptlet" Type

Lib" for short, that ships as part of Internet Explorer 5.0.

In this case, Guninski's malicious code instructs Internet Explorer 5.0's ActiveX Control to wipe out an entire hard drive if the attacker drops an executable to do so. The trick also can add files to the user's hard drive, regardless of the Microsoft browser's security settings.

"Microsoft has shipped from the factory an ActiveX Control marked 'safe for scripting,' which it shouldn't have," Smith says. For its part, Microsoft last week acknowledged the problem, although the company did not make its technical staff available to talk about it. A company spokeswoman didn't acknowledge the vulnerability means "you can drop an executable file into the system. It could do anything."

Microsoft issued a statement

advising users concerned about the problem to disable ActiveX Controls until the company releases a patch for its browser, hopefully later this week.

Guninski works as a security consultant for Netscape, which is now part of America Online. A spokeswoman there says Guninski was hired to review present and future Netscape products after discovering security problems in Netscape Communicator earlier this year. But she and Guninski denied Netscape was paying Guninski to crack Microsoft products.

The ActiveX e-mail escapeade is just the latest in a long line of troubles associated with the technology, asserts Smith, who says about a dozen other ActiveX Controls written by Microsoft also need to be fixed.

Microsoft provides the tools to let others — both the good



A Bulgarian computer consultant has found a way to exploit one of Microsoft's ActiveX Controls so that a message sent to anyone using Microsoft Outlook Express in Internet Explorer 5.0 will be able to delete or add files to the recipient's hard drive. This latest discovery has some heralding the advent of "nuclear e-mail," with a warning to shut off the ActiveX Controls feature in the Microsoft browser.

guys and the bad guys — write ActiveX Controls. Smith says he is concerned that ActiveX Controls are proliferating in a way largely unknown to users, as the Controls ship with a growing number of laptop, computer and software applications.

"These preinstalled ActiveX Controls are the ones I see as very dangerous," Smith says. "Active Controls are pretty difficult to write, and these are written by the good guys. I'm talking about Controls you never have the option not to install — I call them 'accidental Trojans.'"

For instance, the Hewlett-Packard Pavilion laptop comes with an ActiveX Control called "Launch," designed to be used with the HP "System Wizard" for system diagnostics. Smith thinks it offers a back door into the laptop.

Kodak's imaging software that ships with Windows 98 has a Control to override files. It looks like a GIF file in the directory, but it's actually an unsafe ActiveX Control, Smith contends. A Toshiba laptop Smith looked at came with about 1,000 preinstalled ActiveX Controls.

To locate ActiveX Controls, Microsoft makes a tool called OLE View, part of the Visual Studio and Visual C++ developer's kits.

Smith says that he and his colleagues have not found a large number of ActiveX Controls embedded on public Web sites, probably because of the numbers of users still running a Netscape browser, which doesn't run ActiveX, he surmises. ■

Microsoft abandons Alpha server project

BY JOHN FONTANA

Early last week word leaked that Compaq would no longer develop Alpha-based servers that run Windows NT. Later that week Microsoft dealt Alpha the fatal NT blow by announcing that it too would no longer develop NT or NT applications that run on Alpha.

The result: Say good-bye to Windows NT and 2000 as a multiprocessor system.

The moves left IT executives with a number of vexing questions. In terms of scalability, IT executives are left wondering if Windows 2000, running on the new generation of eight-way Intel-based symmetrical multiprocessor (SMP) machines, can match Alpha's scalability.

And when users look for choice, there isn't any beyond Intel Alpha nor joins MIPS and PowerPC as processors Microsoft no longer supports.

Additionally the small number of NT-on-Alpha users will eventually have to either change hardware, software or both.

"It will be costly and painful for leading-edge enterprise customers that went with Alpha," says Dan Kusnerzky, an analyst

with International Data Corp. Microsoft and Compaq say they will support current Alpha customers for the foreseeable future, but no significant new products are forthcoming. Compaq will offer hardware

options, and would cease development of 32-bit Alpha versions of SQL, Exchange and BackOffice. Microsoft will focus 64-bit development on Intel platforms.

By dropping Alpha, some

Alpha-bits

Microsoft said last week it will continue to support customers running Windows NT 4.0 on Alpha. Here is a look at what Microsoft promises to do for customers:

- Support all Windows NT 4.0 workstations and servers
- Release Service Pack 6 for NT 4.0 for the Alpha platform
- Provide hot fixes and Quick Fix Engineering for Microsoft's 32-bit Alpha-based products, including SQL and Exchange Server, concurrent with x86 releases as needed by customers



upgrade and trade-in deals for Alpha customers.

Last week, Compaq unexpectedly ended development for Windows NT on Alpha and laid off some 100 workers. Microsoft followed with an announcement that it would not release Windows 2000 or any other Microsoft products in either 32-bit or 64-bit Alpha ver-

sions. Microsoft has lost its most powerful processor platform for running critical business applications. Those critics say Alpha can't be replaced by the eight-way SMP Intel boxes Microsoft and Compaq are giddy over.

"Microsoft will only be able to compete in the enterprise market if they have the Alpha

processor," says Paul Bunn, chief technology officer of Ultralac, which develops backup and disaster recovery software for Windows NT on Alpha and Intel. "Microsoft and Compaq want to follow the Intel Pied Piper, but it will be a cold day in hell when an eight-way Intel system runs as well as an Alpha box."

"Only about 7% of NT users run the operating system on Alpha, but those users represent the biggest NT systems," says Kusnerzky. "Microsoft can no longer point to Alpha as the big machine for big NT jobs."

But Microsoft claims the Alpha processor does not necessarily offer better performance.

"We haven't seen an apples-to-apples comparison between Alpha and eight-way systems but we think eight-way is favorable given price and performance," says Craig Bellinson, lead product manager for Windows 2000. Along with Compaq, Microsoft is recommending eight-way servers for high-end applications. ■

Cisco targets SNA users with new router features

BY MARC SONGINI

CHICAGO — Cisco wants to make legacy SNA networks more IP-friendly.

The company plans to add new features to its IOS routing software that will let users run SNA data more reliably over IP networks. Cisco also plans to expand its CiscoWorks Blue net management software to enable easier control and monitoring of standard SNMP-based devices from an IBM mainframe.

Cisco intends to roll out a technology called SNA Switching Services (SNAsw) that will let SNA data ride on an IP net without having to first be encapsulated, says Jlety Huber, a Cisco product manager. Usually, Data Link Switching (DLSw), which encapsulates SNA in an IP packet, is required to send SNA over IP.

Huber discussed Cisco's plans at the SHARE Technical Conference in Chicago last week.

SNAsw is based on IBM's Enterprise Extender software, which uses Advanced Peer-to-Peer Networking and High Performance Routing (HPR), two IBM SNA technologies said to boost the performance and reliability of SNA nets.

SNAsw works by taking an SNA message and placing a hybrid SNA-IP header on it. So instead of a TCP header, the SNA data gets a User Datagram Protocol (UDP)-IP header and is sent out into an IP network.

An IP address assigned to the packet will be associated with a destination SNA address. When the packet arrives at a local SNAsw router, the UDP address is stripped off and the SNA payload is delivered to its final destination.

In SNAsw, HPR is used to handle a variety of functions. For example, if an error is detected, HPR will request retransmission of the packet. HPR can also detect a failure and automatically route around a failed device. Conversely, in a DLSw environment, a failed device means lost sessions.

SNAsw has received high marks from beta testers, such as MCI WorldCom. "When a session drops, you need to figure out if it was the IP layer, the DLSw layer or the SNA layer. There is also no good network management tool to correlate events between the three layers. [With SNAsw] there are only two layers to break," says Laurence Kung, a senior network manager at MCI WorldCom.

SNAsw will be available as part of IOS Sept. 7. Also at SHARE, Cisco demonstrated some new features for the CiscoWorks Blue Internetwork Status Monitor (ISM). ISM is Cisco's software for managing routers from a mainframe. The most interesting new feature lets ISM directly monitor and manage any SNMP device without having to go through an RS/6000 gateway, as is now required.

ISM is built upon Cisco's Native Service Point software, which also lets

NetView users manage routers from the mainframe. ISM runs on IBM MVS mainframes with NetView Version 2 and later.

Cisco declined to comment, and it is unclear when the new version of ISM

with SNMP support would be available.

One network manager at a large insurance company says removing the RS/6000 gateway is a big plus. Some companies that want to use their ISM

mainframe capabilities for SNMP may not be able to because they lack RS/6000 skills, says the manager, who spoke on condition of anonymity. "We never considered the SNMP capabilities of the ISM via the RS/6000 because we didn't have the staff. It would have meant a bigger investment." □

ZERO BIT ERROR RATE

GUARANTEED.

DATA TRANSMISSION
THROUGH YOUR
CABLING SYSTEM CHANNEL
DOESN'T GET ANY BETTER
THAN THIS.

and network speed within the structured cabling channel by eliminating data re-transmissions.

This is accomplished through implementation of impedance-matching standards that are five times more rigorous than current industry standards. The result — we

guarantee zero bit error rate data transmission throughout your entire cabling system channel including patch panels, horizontal cabling, jacks and patch cords. For network performance

you've always wanted, visit our web site or call: 800-775-KRONE.

TRUENET™



KRONE

www.truenet.prestolitewire.com



Free Product info enter NWinInfoXpress #84 online @ www.networkworld.com/Infoexpress

Cisco routers to get copper Gigabit

FlowWise's new card acts like a Layer 3 switch and offers copper and fiber Gigabit Ethernet.

BY JEFF CARUSO

SAN JOSE — Cisco users who are looking to boost routing speeds but don't want the aggravation of replacing their routers with Layer 3 switches may be interested in a new FlowWise module being announced this week.

Like FlowWise's previous module, the new RA 7000G card slides into a Cisco 7000 or 7500 router and acts like a Layer 3 switch, routing at high speeds.

The previous card stopped at Fast Ethernet; the RA 7000G has four copper Gigabit Ethernet ports, two fiber gigabit ports and four Fast Ethernet ports. The company plans to demonstrate the card at next month's NetWorld+Interop '99 Atlanta.

Dan Markelow, president and CEO of New Age Communications, a network integrator and ISP in Pleasant Grove, Utah, says the new module will let

his company add capacity to its Cisco 7000 ship without adding an entirely new box.

New Age currently has the Fast Ethernet FlowWise module and is evaluating the new card.

FlowWise claims the new module will forward packets at 3 million packets/sec, about 20 times as fast as Cisco says its Gigabit Ethernet Interface Processor runs.

FlowWise also claims that the card can forward packets at that rate even when access control lists are used. Access control lists are lists of users who have access to different network resources.

Routers consult the lists to grant or deny access to those resources. Using access control lists tends to slow down routers.

"I tried access control lists on the Cisco routers, but they're just too slow," Markelow says. He looks forward to using the lists with the upcoming

FlowWise product, he says.

Network managers still have to configure the access control lists on the Cisco router, but the card learns those lists and uses them to filter traffic.

FlowWise's card requires little configuration because it learns where to route IP traffic by watching the first packet in a flow go through the router, says Randy Fardal, vice president of marketing at FlowWise. By seeing what the router does with the packet, the module knows how to handle sub-

sequent packets headed for the same destination. It then acts like a Layer 3 switch, forwarding packets at high speeds.

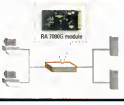
The delivery date for the RA 7000G depends on when chip maker Broadcom has copper Gigabit Ethernet chips available in quantity. Fardal says delivery is targeted for November. The card will cost \$24,950.

FlowWise: www.flowwise.com

FlowWise's new module

The new FlowWise RA 7000G module for Cisco 7000 routers:

- Has four copper Gigabit Ethernet ports, two fiber gigabit ports and four Fast Ethernet ports.
- Acts like a Layer 3 switch.
- Forwards packets at 3 million packets/sec.



3Com, Siemens kill joint venture

BY JIM DUFFY

FRAMINGHAM, MASS. — Less than a year into the project, 3Com and Siemens have shuttered their \$100 million joint venture to develop LAN technology products.

In a filing with the Securities and Exchange Commission, 3Com stated that an "expanded strategic relationship" with Siemens this year obviated the need for the joint venture.

"During fiscal 1999, we expanded our strategic relationship with Siemens AG to include a worldwide joint selling agreement in the large enterprise and solutions provider markets," the 10-K filing stated. "The strategic alliance may consider joint development of voice-related enterprise and carrier solutions. In light of the current strategic relationship, the two companies will not proceed with a previously announced joint venture."

3Com and Siemens have had a joint development and marketing relationship for more than two years. In October 1997, the companies announced the Carrier Scale Internetworking alliance, which also included Newbridge Networks.

The joint venture, though, was more ambitious. It was to have been co-owned and jointly staffed by Siemens and 3Com, with headquarters in

the U.S. and developers in California, Massachusetts, Germany, Israel and the U.K.

The companies planned to staff the joint venture with more than 200 engineers who would have produced LAN technology products combining 3Com's SuperStack II and CoreBuilder LAN switches with Siemens's HiCom and HiNet PBX and call-processing technology.

The products, including LAN PBXs, multimedia exchanges and gateways, would have shipped this year and into 2000.

In March, the companies named a general manager and board members for the joint venture and said plans for the joint venture were proceeding, even broadening. But last week, 3Com and Siemens officials said the joint venture would be too unwieldy for their respective convergence strategies.

"We were accomplishing what we had set out to do through the collaboration between the two engineering organizations," says Steve Cragan, 3Com director of strategic relationships. "We could continue that mode of operating and we have more efficient ways of getting products to the marketplace without having to go through the overhead of creating a third corporation."

The companies still plan to

develop and release the LAN telephony products that were to have been developed under the joint venture — only now 3Com and Siemens will be building them separately. The time frame for releasing the products remains largely intact, Cragan says. Release of the SuperStack II LAN Telephony Gateway, however, has been pushed back to later this year. That product was to have shipped in the first quarter. Siemens plans to release a "major" upgrade to HiNet RC3000 call-processing software in the fall, says Hans Schwarz, senior vice president and general manager of Siemens' IP networking division.

Analysts say 3Com's \$90 million purchase of pocket PBX vendor NBX in March essentially killed the joint venture with Siemens.

"After they bought NBX, which was directly competitive to what supposedly Siemens and 3Com said they were going to be working on, it was like, 'Well, OK, so what is the relationship now?'" says Craig Johnson, principal at The PITA Group in Portland, Ore. "Obviously, now what it has become is nothing."

3Com and Siemens deny that. "There was never any intent to incorporate NBX into the joint venture or have it replace the joint venture," Cragan says. □

More breaking news

Network World Fusion now has more news than ever. Check out these stories online:

Gates hedges on Windows 2000 delivery date

In a speech last week, Microsoft chief Bill Gates said he was "pretty sure" that Windows 2000 would ship this year. Echoing the company line, Gates said the No. 1 priority was delivering a quality product. The Windows 2000 name seems to be making more and more sense.

DocFinder: 4440

eSuite users unclear on Lotus plans

Reports have surfaced that Lotus is killing off its much-publicized but poorly selling eSuite, a group of mini-applications designed for thin clients. Lotus customers, however, have yet to be told exactly what the eSuite vendor is up to.

DocFinder: 4441

Melissa virus author confesses

Last week the author of the Melissa virus reportedly confessed to the authorities, perhaps in an effort to avoid a prison sentence of up to 49 years.

DocFinder: 4442

Get your news here!

NetFlash delivers network news to your e-mail inbox every day, free of charge. And it includes occasional flashes of wit. Sign up today, sit back and let the news come to you.

DocFinder: 3859



WWW.NETWORLD+INTEROP.COM

It's not just about saving money
with a network that integrates
voice, video, data and Internet
over a single connection.



It's about being ready for anything.

**Sign up for Sprint IONSM and we'll give you
advanced networking technology from Cisco Systems.**

With Sprint ION, Integrated On-Demand Network, you can save money by consolidating your communications across a single network, as well as revolutionize the way you share information, so you'll be ready for anything! **Bring products to market faster. Reduce inventory. Enhance customer service.** It's all possible thanks to Sprint and Cisco. Cisco networking equipment ensures that the technology powering the majority of the world's business networks today is at work for you. And now, when you sign up for Sprint ION, **Sprint will give you a Cisco 3810 integrated services hub for each location.***

And if you trade in any existing Cisco 2500 series router or competitive equipment, Sprint will give you up to a **\$500 rebate for each eligible router.*** Sprint even pays for the cost of returning this equipment.

It's easy to migrate to Sprint ION. The network supports and is fully compatible with most IP applications and services, ATM, frame relay, or voice services and equipment—with **virtually unlimited bandwidth!** Plus, Sprint ION is "future-proof," because Sprint assumes operational responsibility for keeping your business on the cutting edge of technology. But it's not just about getting the next-generation network. It's about real-time collaboration among your employees, suppliers and customers in newly productive ways. **And isn't that the point of contact?**

Call toll free now for this limited-time offer...plus up to \$500 rebates!

1-877-SPRINT-ION

www.sprint.com/ion-cisco

*Certain restrictions apply. Certain access lines and monthly minimums required. Customer must sign a two-year contract. Offer expires December 31, 1999. Offer subject to change.
© 1999 Sprint Communications Company L.P. All Rights Reserved. Cisco and the Cisco Systems Corporate Logo are registered trademarks of Cisco Systems, Inc.



The point of contactSM

Cabletron to unleash wireless, ISP gear

BY JIM DUFFY

ROCHESTER, N.H. — Cabletron will make two announcements at NetWorld+Interop '99 Atlanta that could be significant to LAN managers and ISPs: new high-speed wireless products and the company's entry into the white-hot market of multigigabit routers for the Internet.

The new wireless LAN products will be an 11M bit/sec version of Cabletron's SmartSwitch RoamAbout system. That system currently consists of 2M bit/sec PC Card adapters, as well as access points — the wireless equivalent of a LAN hub — and building-to-building bridges that can connect up to 200 users more than 600 feet apart within a building or up to six miles apart between buildings.

The 11M bit/sec products

will include an adapter and access point that will replace the current 2M bit/sec products. The new products will work with the existing 2M bit/sec building-to-building bridge until Cabletron replaces it with an 11M bit/sec device later this year, says Trent Waterhouse, senior technical architect for the company.

In addition to cranking up the speed, Cabletron has added some other enhancements to the new wireless gear. The devices support 128-bit Wired Equivalent Privacy encryption keys vs. the 40-bit WEP key in the 2M bit/sec offering.

Cabletron has doubled the maximum distance between an end station and access point within a building to 1,200 feet. The company also has a patent pending on its technique for powering the access point through an

Ethernet cable, rather than a power outlet.

And Cabletron has lowered the price of its SmartSwitch RoamAbout offerings, from \$495 to \$195 for the adapter and from \$1,295 to \$699 for the access point. The price of the 2M bit/sec building-to-building bridge remains \$2,495.

The 11M bit/sec SmartSwitch RoamAbout wireless LAN will ship in September. That's when Unicus, a Duluth, Minn., operator of cybercafes, plans to receive its upgrade. Unicus is currently using the 2M bit/sec SmartSwitch RoamAbout to connect two cafes that are about one mile apart.

"I just got to a point where I was disgusted with being dependent on a physical line," says David Anderson, vice president at Unicus. "Our first wireless loop has been up for a year, and we have had no more

than a half hour of downtime." Unicus is upgrading to 11M bit/sec because the company is becoming a wireless ISP, Anderson says. "It just gives me more available bandwidth" to offer customers, he says.

For ISPs, Cabletron will roll out what it calls a multiservice aggregation platform based on its SmartSwitch Router product. The platform will be a modular chassis that supports more than 100G bit/sec of bandwidth and more than 100 million packet/sec of forwarding performance.

For enterprise customers, this product will enable delivery of a new class of high-speed data services, such as Internet and IP telephony, and virtual private networks. For Cabletron, an enterprise player that has seen its fortunes sag of late, it will be another offering with which to attract new customers in a relatively new market for the company, service providers.

The multiservice aggregation platform will sport more

than 100 ATM and packet-over-SONET ports ranging in speed from OC-3 to OC-48. It will support more than 100 T-1/T-3 links and more than 100 Gigabit Ethernet ports, as well as redundant power supplies and switching fabrics.

The product will support Differentiated Services and Multi-protocol Label Switching for quality of service and traffic engineering, respectively. For traffic priority and congestion control, the product will feature weighted fair queuing, class-based queuing, random early detection, weighted random early detection and committed access rate. It will also support policy-based routing, Waterhouse says.

The multiservice aggregation platform will compete with Cisco's 12000 Gigabit Switch Router and Juniper's M40 routers. Pricing and availability were not available at press time.

Cabletron: www.cabletron.com

Sign up for free help for your network

Network World

TECHNOLOGY NEWSLETTERS

2 new technology e-mail newsletters from Network World to debut next week

Premiering the week of Sept. 6



"Directory Services," by Network World columnist Dave Keems
The information you need to evaluate, install and maintain the right directory services products for your enterprise twice a week. Along the way, Dave Keems will explain the buzzwords and acronyms and cut through the fog, so that you'll understand both the basics of the directory, as well as the advanced concepts on the leading edge of the coming directory-enabled world of computing.



"E-Comm in the Enterprise," by Network World Fusion Managing Editor Sandra Gitten

Business-to-business electronic commerce is here, and it's big. This twice-weekly newsletter will help you keep your network ready. The newsletter will offer you tips, topics and tales from the e-commerce front lines. Sandra will let you in on how the newest products fare in users' networks and what technologies will help you get the job done.

While you're at the Web site, sign up for any of our other 12 twice-weekly newsletters. Here are the topics you can choose from, written by experts in the field:

- Security
- Messaging
- High-speed LANs
- VPNs
- Frame Relay
- Windows NT
- Network/Systems Management
- Web Applications
- Internet Services
- Tech Update
- Voices of Networking (compilation of Network World columnists)
- Careers



Plus, sign up for Doug Barney's Daily Netflash newsletters.

Network World's Executive News Editor keeps you absolutely up-to-date on the most important breaking stories you need to know about each and every weekday.

www.networkworld.com/focus/

**DOES POOR COLOCATION SERVICE LEAVE YOU
LOOKING FOR OTHER WAYS TO COMMUNICATE?**



If the Web is critical to the success of your business, you need UUNET,[®] an MCI WorldCom[™] Company. You see, only UUNET offers colocation that connects you directly to the world's highest capacity IP network. At our state-of-the-art data centers, we don't just provide 24x7 monitoring and security. We guarantee 100% network connectivity and power availability. And with the global expansion of our data centers, your servers and customers are always within easy reach. It's no wonder half the companies in the S&P 500 trust their Web needs to us. To learn more, call us at 1 877 783 2601 or visit www.info.uu.net/colocation. And get colocation performance and reliability that's truly worth shouting about.

UUNET
An MCI WorldCom Company

THE WORLD'S INTERNET COMMUNICATIONS COMPANY

© 1999 UUNET, a subsidiary of MCI WorldCom, Inc. All rights reserved. UUNET and the UUNET logo are trademarks.

Lucent bolsters enterprise network hub wares

New Cajun line offers IP routing, Ethernet switching and scalable port density.

BY DAVID ROHDE

MURRAY HILL, N.J. — Lucent this week will attempt to dramatically step up its presence at the enterprise hub level by unveiling four new stackable Ethernet switches.

Lucent is combining the new product initiative with a big acceleration of its shift to indirect sales channels, which the company hopes will give it a better shot.

Lucent's new multilayer Cajun P330 switch family to be announced today allows users to stack up to 10 Ethernet boxes of either 24- or 48-port capacity each, all managed as a single device with one IP address. The company also will provide optional expansion-port uplinks to its Cajun P550 Gigabit Ethernet switch or its

Cajun M770 ATM multiservice switch.

The basic model, the 24-port P333T, will offer Layer 2 Ethernet switching at a price of around \$125 per port. One of the other models, the P333R, offers IP routing capability for the entire stack, even if all the other boxes in the stack are only Layer 2-capable. The two remaining models will offer expanded port density and special power protection for carrier environments, respectively (see graphics).

Stacked for general availability next month, the P333T has drawn raves from initial users who have installed it over the past month. "This is almost an enterprise hub in itself at the price of a stackable," says Jarrod Wagner, network manager at Protection One, an alarm-mon-

itoring firm in Irving, Texas.

Wagner especially likes a port-mirroring feature that enables him to use a sniffer to check all of his network's traffic even though it's a switched rather than a shared environment. "Port mirroring enables you to see everything that's going through the port," Wagner says. With two P333Ts on the stack so far, Wagner is also considering installing a P333R to add routing capability and conserve processing power in his stand-alone routers.

Analysts note many similarities between the P330 series and Cisco's recently announced Catalyst 3500 XL LAN switch line (ENR, May 31, page 21). For example, both product lines will support Gigabit Interface Converter-

New stackables for the wiring closet

Lucent's Cajun P330 family of stackable switches includes:

Model	Description	Additional features
P333T	24 10/100 ports standard	Optional expansion slot for 16 additional 10/100 ports*
P333T-DC	Same standard and optional port offerings as P333T	Adds 48-volt DC power supply for carrier central office
P334T	48 10/100 ports standard	Optional expansion slot for 16 additional 10/100 ports*
P333R	Same standard and optional port offerings as P333T	Adds ASIC-based IP routing capability

* Expansion slot can also be used for one or two Gigabit Ethernet ports.
Source: Lucent Networks Inc.

based Gigabit Ethernet ports for users who want to run Gigabit Ethernet traffic over either copper or fiber.

On paper, the 24- and 48-port Lucent products double

the Catalyst family's port density of 12 and 24 ports, but the analysts say they aren't too impressed with that. "Who really needs such high density on a stackable beats me," says Michael Speyer, assistant director of network solutions at The Yankee Group, a consulting firm based in Boston.

What's more important to Speyer is the fact that Lucent is spreading the word that it will make the new stackables widely available to some new sales channels. Lucent officials say they will push the Cajun P330 series through many of the same distributors and value-added resellers (VAR) that currently offer the Pipeline and SuperPipe remote-access routers originated by Ascend Communications, Lucent's most important recent acquisition.

Until recently, Lucent has attempted to sell data products by using its direct-sales PBN user base. That strategy wasn't working too well, according to Speyer.

"Products like these don't necessarily get sold direct. They need to go through VAR channels," Speyer says. "To the extent that Lucent is getting its VAR channels sorted out, the more you're going to see these products in the marketplace."

The P333T will be available next month at a price of \$2,995. The P333R with integrated IP routing will be available in the fourth quarter for \$5,495.

Lucent: www.lucent.com/dna

Frame Relay Forum renews its purpose

BY TIM GREENE

The Frame Relay Forum has set itself a new goal: to clarify its stance on quality of service (QoS).

Rather than shut down the forum's technical committee, as some industry observers thought they should, forum members voted to bolster the committee and spell out how to preserve QoS across frame relay gear made by different vendors.

Members voiced that desire in response to a survey conducted earlier this month prompted by the group's technical committee chairman, who questioned whether the forum should abandon its technical work altogether (ENR, May 31, 1998, page 1).

Members say specifications outlining how to implement QoS over frame relay networks are scattered among formal Frame Relay Forum technical specifications and lack cohesion, according to forum President Lori Dreher.

QoS is a valuable tool for supporting service-level agreements that service providers offer to customers. The forum

is made up of about 150 service providers and makers of frame relay gear.

While it cannot set standards, the forum does issue what it calls "implementation agreements," which bridge the gap between frame relay standards set by the International

Telecommunication Union agreements, Dreher says.

The forum might also decide that it is worth a separate implementation agreement just to deal with QoS, she says.

In addition to working on QoS, forum members say they

A refreshed Frame Relay Forum

After years public soul searching, the Frame Relay Forum has renewed focus. The group wants to:

- Clarify its stance on how to guarantee quality of service over frame relay networks
- Establish specifications for interworking frame relay and ATM available bit rate quality of service
- Streamline the work of its technical committee to get work done faster.

Telecommunication Union (ITU) and specifications that vendors need to make interoperable frame relay gear.

Without a clear statement on QoS, it is difficult for vendors to make equipment that conforms to QoS policies set by other vendors' gear. The QoS issue could be cleared up with something as simple as a white paper that pulls together in one place the QoS references that are scattered among

want the committee to write specifications on interworking frame relay with a particular ATM service quality known as available bit rate. Such interworking is important to maintaining QoS when traffic crosses between frame relay and ATM networks.

Members also want to determine how frame relay should interwork with IP again to address QoS issues. Members rejected the idea of

New tool blocks why e-comm hacker tricks

BY ELLEN MESSMER

MOUNTAIN VIEW, CALIF. — Think your electronic commerce site is safe from hackers?

A little demonstration from start-up Perfecto Technologies might convince you otherwise.

Company co-founder Eran Reshef sat down at this reporter's PC, logged on to an e-commerce site and, using only the browser, changed the price of an item by modifying the site's HTML.

A similar demo for Quote.com exposed security holes and lead Quote.com to buy AppShield, a tool

Microsoft browsers.

Officially shipping this week, AppShield is already winning plaudits from beta testers who have had the chance to kick its tires for a few months.

"We have evidence of the fact that it can work," says Kaj Pedersen, vice president of engineering at Quote.com, a Web site that provides stock quotes, news, research and portfolio management for investors. Pedersen found out about Quote.com's security holes after Perfecto employees hacked the company's Web site in two or three different ways right in front of him.

PROFILE: PERFECTO TECHNOLOGIES

Based: Mountain View, Calif.
Founded: 1997 by Gil Raanan and Eran Reshef
Employees: 40
Funding: \$17.5 million from Intel, Sequoia Capital, others
Product: AppShield, a Web application security product



Perfecto designed to bullet-proof e-commerce sites.

Reshef came up with the idea for AppShield with his partner, Gil Raanan. Both honed their computer skills as officers with Israeli secret intelligence.

AppShield is an HTTP proxy filter that sits in front of a Web-based e-commerce application. It keeps crooks out by refusing to process any bogus character inputs, such as long Common Gateway Interface buffer overflows, that can hijack the server.

Clean cookies

AppShield also blocks a trick called "cookie poisoning," in which an attacker alters his Web cookie after he's logged on with a password and ID. This is important because many Web sites rely on a cookie to keep a state of connection with the e-commerce user after authentication. Once altered, the trickster can take on another identity and use someone else's account, for example.

AppShield can also prevent hackers from changing prices on items added to e-commerce shopping carts, something that can be surprisingly easy to do with the HTML tools that are part of the Netscape and

Page watching

To prevent break-ins, AppShield analyzes every page generated by the Web server every time it is requested, but before the page gets to the browser. The process adds about 20 milliseconds to the browser-server communication, Reshef says.

AppShield's policy recognition engine expects an application page to be returned as it originated, and AppShield filters out illegal character inputs. If the software senses trouble, AppShield notifies the e-commerce manager through an e-mail or pager alert. The software can also give the would-be Web hacker an error code response or other message.

In general, preventing hacker exploits requires the e-commerce application to be rigorously designed and reviewed by security experts. But this is a luxury not all e-commerce operations can afford.

Instead, e-commerce sites are often rushed into production for competitive reasons. But Perfecto's founders think their application security proxy can protect sites that have not been designed with such rigor.

"This is for brokerages, airline companies, phone companies, retailers, financial institutions and online pharmacies, analysts and TV stations."

AppShield, which costs \$20,000, will be just the first product from Perfecto. Reshef says the start-up plans to announce other security tools in the next few months.

Perfecto: www.perfectotech.com

Allied Telesyn's
AT-3700XL
Switches Are
Fully Compatible
with PublicPort[®]
Systems*

16 or 24 ports 10Base-T ports
1 fixed 10/100TX uplink
1 optional 10/100TX or 100FX uplink
Half/full-duplex operation on all ports
Support for up to 2,000 MAC addresses
IEEE 802.1Q VLAN support
Port mirroring
Spanning Tree redundancy
SNMP or web-based management



Fully Compliant
802.1Q Ethernet Switches
Value Leader

The AT-3700XL series of managed switches from Allied Telesyn

Allied Telesyn's AT-3700XL series of managed Ethernet switches combine rich functionality with a remarkably low purchase price to deliver outstanding value to departmental or workgroup environments where reliability, interoperability and vendor support mean more than just brand. Mind you, as one of the first vendors to ship a fully-compliant IEEE 802.1Q Ethernet switch, we can rightfully claim technology leadership too.

And with web-based management helping with network control, security and performance, AT-3700XL series switches provide all the important features you need from a user-friendly workgroup switch. But because they are priced some 10-20% below comparable devices from the brand leaders and come with great warranties and free technical support, AT-3700XL series switches represent significantly better value.

Give Allied Telesyn or your reseller a call today for the latest news on AT-3700XL series of switches.

Fully compliant 802.1Q Ethernet switches from Allied Telesyn. Now you know.

As low as
\$19.95
per port*

Allied Telesyn
Simply Connecting the World

Tel: 1.800.424.4284 www.alliedtelesyn.com

Copyright © Allied Telesyn International Corp.

* For more information, go to www.alliedtelesyn.com/news/pressroom. PublicPort is a trademark of PublicPort, Inc.
 ** As sold by Global Computer Supplies, as of May 25, 1999. www.globalcomputer.com

NWinfoXpress #71 @ www.networkworld.com/infoqpress

IPv6, continued from page 1

ing a significant increase in the number of IP addresses they can reserve, as well as easier administration and tighter security (see story right).

Microsoft is a member of the IPv6 Forum, a group of 50 companies that was formed in July to foster adoption of the new standard. Additionally, a Microsoft employee — Tony Hain — is one of three co-chairs of the IETF IP Next Generation

another chair of the IP Next Generation Transition Working Group and a research engineer at IMAG in Grenoble, France. "From my understanding, IPv6 is not a priority for Windows 2000."

Microsoft takes a stand

Microsoft didn't do much to dispel that notion in a statement issued to *Network World* last week.

"Microsoft has made significant investments in exploring this technology," the company says. "However, due to the experimental nature of IPv6, Microsoft will not support it in Windows 2000, but will continue to solicit customer feedback and explore implementations in future versions of Windows."

The implications extend beyond Microsoft products, according to another IETF official.

"For IPv6 to be rolled out in the Internet as we know it today, it requires a wide availability of



Microsoft's Gates is being targeted by influential proponents of IPv6.

Transition Working Group. But despite this show of support, the company has not yet agreed to integrate IPv6 into its products, particularly Windows 2000. Currently, Microsoft offers an IPv6 protocol stack for Windows NT that can be downloaded from the company's Web site, but the stack is for experimental, rather than production, use.

"There is no official support yet from Microsoft Corp. for IPv6," says Alain Durand,

products, such as Cisco routers, Sun workstations and Microsoft servers and workstations to support IPv6," says Bob Fink, the third co-chair of the working group. "This way systems administrators and network administrators won't have to make a decision about running IPv4 or IPv6. They can simply run both, so the transition can happen naturally."

"To date, we have strong commitments from Sun and Cisco," Fink continues. "But from Microsoft, we have meritorious efforts by the research [side of the company], but no firm commitments on the product side and no information about the status of the work and when it might be done. We certainly believe it is essential to the industry that Microsoft support this effort."

Durand would like to see Microsoft integrate an IPv6 protocol stack within Windows, so everyone who buys a PC running Windows will automatically receive the new standard. He says this type of integration is necessary for production use of IPv6.

"What we would like is some kind of commitment from Microsoft, to have Micro-



The Scoop

The news behind the news

WHY THE PUSH FOR SUPPORT OF IPV6?

Internet Protocol Version 6 resolves a number of problems that have plagued the current IPv4 standard, most significantly the rapidly depleting number of unique Internet addresses available today.

IPv6 supports 128-bit addresses, while IPv4 supports 32-bit addresses. IPv6 can support a virtually unlimited number of Internet addresses, while IPv4 only supports a few billion. The extra addresses offered by IPv6 are important for the development of Internet devices, such as phones and television set-top boxes, which will each require a unique address in order to be accessed over the 'Net.

Other benefits of IPv6 for enterprise customers include:

- Automatic configuration of IPv6 hosts. This feature will mean less staff effort and time required to configure an IP-based network.
- The ability to change ISPs without disruption of service, via router renumbering and neighbor discovery protocols.
- End-to-end security without network address translators, which can cause security breaches.

IPv6 also offers built-in multicast and differentiated levels of service, two features that were recently added to IPv4.

—Carolyn Duffy MacLean

soft say that they are really going to support IPv6 and that we would see a product in a year or so," Durand says. He is "confident" Microsoft will do so once customer demand picks up, he says.

IPv6 is already supported in IBM's AIX operating system and in various flavors of Linux. Meanwhile, Trumpet Software International of Australia is shipping an IPv6 protocol stack for Windows 95, 98 and NT systems.

Still, Microsoft's lack of support "is a problem, because most of the machines that we have now on the Internet are PCs running Windows," Durand says.

Demand is the key

Reluctant to point Microsoft as the heavy, Cerf says the IPv6 transition is also being slowed by "a lack of strong incentive for software and hardware vendors to prepare for it. Customers are not yet pressing the matter."

"However, the rapid growth of the Internet outside the U.S. and the entry of large quantities of IP-requiring end devices — such as cell phones, personal digital assistants and Internet-enabled televisions —

may be key to such demand," he adds.

In related news, the first production IPv6 addresses were issued in recent weeks.

The first organization to receive a production IPv6 address was the Energy Sciences Network.

The first commercial IPv6 addresses were made available last week by Internet Initiative Japan, one of the largest ISPs in Japan. □

NetworkWorld

Editorial Director: John Gilgott
Editor: John Ols

NEWS

Executive Editor: Bruce Fung
News Editor: Paul H. Smith
Associate News Editor: Michael Coates
News Editor: Paul H. Smith
Associate News Editor: Paul H. Smith
News Editor: Paul H. Smith

NETWORK WORLD FUSION

Deputy Editor: John Gilgott
Deputy Editor: John Gilgott
Deputy Editor: John Gilgott
Deputy Editor: John Gilgott
Deputy Editor: John Gilgott
Deputy Editor: John Gilgott

INFRASTRUCTURE

Deputy Editor: John Gilgott
Deputy Editor: John Gilgott
Deputy Editor: John Gilgott
Deputy Editor: John Gilgott
Deputy Editor: John Gilgott
Deputy Editor: John Gilgott

CARRIERS & ISPs

Deputy Editor: John Gilgott
Deputy Editor: John Gilgott
Deputy Editor: John Gilgott
Deputy Editor: John Gilgott
Deputy Editor: John Gilgott
Deputy Editor: John Gilgott

ENTERPRISE APPLICATIONS

Deputy Editor: John Gilgott
Deputy Editor: John Gilgott
Deputy Editor: John Gilgott
Deputy Editor: John Gilgott
Deputy Editor: John Gilgott
Deputy Editor: John Gilgott

COPY DESK/LAYOUT

Deputy Editor: John Gilgott
Deputy Editor: John Gilgott
Deputy Editor: John Gilgott
Deputy Editor: John Gilgott
Deputy Editor: John Gilgott
Deputy Editor: John Gilgott

ART

Deputy Editor: John Gilgott
Deputy Editor: John Gilgott
Deputy Editor: John Gilgott
Deputy Editor: John Gilgott
Deputy Editor: John Gilgott
Deputy Editor: John Gilgott

FEATURES

Deputy Editor: John Gilgott
Deputy Editor: John Gilgott
Deputy Editor: John Gilgott
Deputy Editor: John Gilgott
Deputy Editor: John Gilgott
Deputy Editor: John Gilgott

REVIEWS

Deputy Editor: John Gilgott
Deputy Editor: John Gilgott
Deputy Editor: John Gilgott
Deputy Editor: John Gilgott
Deputy Editor: John Gilgott
Deputy Editor: John Gilgott

Corrections

In our recent review of network monitoring and alerting software *INM*, Aug. 23, page 58, we should have noted that pricing for WatchDog 3.6 from Tensler's Nifty Tools starts at \$695 each for WatchDog-IP and WatchDog-Modem.

On page 57 of this issue, Delano Technology's full company name was inadvertently omitted from the deck of the review of the company's n-Business Interaction Suite.

Be
Net Know-It-All

For the answers to this week's questions and more, turn to the Net Know-It-All section in the DeForster issue.

This week's question:

In which of the Big Five accounting firms did Cisco recently invest \$1 billion?

www.nwefusion.com



Infrastructure

TCP/IP, LAN/WAN Switches, Routers, Hubs, Access Devices, Clients, Servers, Operating Systems, VPNs, Networked Storage

Briefs

Encanto Networks last week announced a Web server for remote and branch offices that supports connections to high-bandwidth Internet and LAN services. Encanto's Model 410 Web Server was designed for offices with 10 or fewer PCs that have no local IT support. The server includes a four-port Ethernet hub for LAN connectivity to frame relay or T-1 networks, a separate Ethernet port for Net access via digital subscriber line or cable modem technology, and a built-in firewall. The package comes bundled with Encanto's e-commerce, payment and publishing software. The dedicated hardware/software offering sells for \$1,695 and will be available Sept. 1.

Encanto also sells Web servers that support Internet access via 56K bit/sec dial-up lines and ISDN lines.

Encanto: www.encanto.com

BMC Software has rebranded its storage management and recovery products, spun them off into their own business unit and outlined a roadmap for future storage product development. The company will focus the attention of its fourth business unit on recovery management and enterprise storage management, and taking on responsibility for existing storage products. The new unit will pull in about \$1 billion worth of business by 2002, the firm claims.

BMC has rebranded many products, including its Enterprise Storage Management products for Windows NT, Unix, NetWare, AS/400 and OS/390, under the moniker Resolve. BMC will also be enhancing its product lines over the next 12 to 18 months to include the ability to outsource end map storage objects and lets users control storage configurations from a single management console.

BMC: www.bmc.com

Check Point software bolsters LAN security

BY TIM GREENE

REDWOOD CITY, CALIF. — Check Point this week will introduce software that protects servers from unauthorized users within corporate LANs and across public networks.

VPN-1 SecureClient and SecureServer bring Check Point's existing firewall and policy-based security to desktops and central application servers. SecureClient also extends these same protections to remote users who dial in to corporate networks.

"This new software lets enterprises protect individual applications. It's a logical architecture," says Abner Germanow, an analyst at International Data Corp. in Framingham, Mass.

With SecureServer software installed on a Windows NT server, network administrators can use a firewall to protect the applications from unauthorized users on the LAN as well as those dialing in via an Internet virtual private network (VPN).

The new products, a new VPN reporting system and upgrades of Check Point's VPN-1/Firewall-1 software are part of the company's Secure Virtual Network architecture. The architecture extends firewall and encryption support to any other workstation or server in an enterprise net.

The new release of VPN-1/Firewall-1 software lets users link VPN-1 server gateways for backup. For example, the software enables a backup VPN-1 server to take over for another failed server,

Bringing VPN protection to the LAN

Check Point secures VPN-1 SecureClient and SecureServer software.

- SecureClient functions as a remote access client as well as a corporate desktop client.
- Software provides firewall protection to individual LAN devices.
- SecureServer protects LAN servers from unauthorized employees.

keeping individual VPN sessions alive so remote users are unaware of the failure. The servers involved would synchronize the exchange of encryption keys in order to keep the session going without interruption.

The upgraded software also backs up VPN-1 servers when they are located at different corporate sites. So if a remote user has dialed in to one VPN-1 server and it fails, the remote user's VPN-1 client software will automatically try to access a backup server located at another corporate site. In this case, though, the

client's VPN session is dropped and the client would have to establish a new session with the second server.

In order for the remote user to access the same VPN resources, the two sites must be networked by some other means besides the failed VPN server — such as a dedicated line or frame relay link. Check Point is also expanding the number of companies whose public-key infrastructures (PKI) it will support. Formerly Check Point supported just Entrust, but the list has expanded to include Netscape, Baltimore Technologies, GTE, IBM, Microsoft, Security Dynamics, Spyglass and Verisign.

All of the companies have agreed to support an open PKI defined by Check Point, but interoperability with the other vendors' gear has yet to be certified, Check Point says.

Once compatibility has been achieved, Check Point customers will find it easier to set up VPNs with business partners who use VPN gear made by other vendors, Check Point says.

"To do VPNs properly on a large scale, you need to be able to exchange digital certificates in a variety of places," Germanow says.

Check Point is also adding reporting software that can generate reports based on the logging data gathered by the VPN-1 software. Check Point Reporting System runs on Windows NT or Solaris workstations.

The software lets network executives plan VPN capacity by monitoring and assessing actual use, the company says.

The capability is long overdue, IDC's Germanow says: "They were in dire need of this."

Pricing for VPN-1/Firewall-1 starts at \$3,495. VPN-1 Secure Client costs \$50 per client, and Secure Server costs \$895 per server. All are available now.

Check Point: www.checkpoint.com

Expand gear boosts T-1 throughput

Accelerator uses compression to improve bandwidth utilization.

BY TIM GREENE

NEW YORK — Expand Networks, a privately funded start-up, is introducing a compression device that the company says saves money by boosting throughput on a T-1 over fourfold.

The firm's Accelerator 4000 takes WAN traffic from a router and compresses it using technology that Expand calls adaptive acceleration. It then drops the traffic onto a WAN link.

"We've seen 300% to 400% improvement in performance consistently," says Chuck Farner, director of information technology for Wyle Electronics, a



Accelerator 4000 boosts potential T-1 throughput.

semiconductor distributor in Irvine, Calif., that has been using the device.

Expand says the device was designed for companies that have a need for more bandwidth but want to minimize the number of new data lines they have to buy. For many users, that means they could save the most money on the most expensive links: international dedicated circuits.

Accelerator 4000 analyzes traffic as it passes through the device from a different type of packets by looking at traffic headers

See [Expand](#), page 20

T-1 line. The box identifies different types of packets by looking at traffic headers

More Online

- PKI resources, including primers and white papers.
- A review of VPN-1.
- Free e-mail newsletters about VPNs and security.

www.nwfusion.com



COMPAQ

It better be, so nearly all Compaq enterprise-level servers deliver 99.99% availability, up to 99.999% in some cases. That applies to our storage systems, too. In fact, it's one reason

Your server is
your warehouse.

Is it working
around the clock?

Compaq is the enterprise storage leader, outselling #2 IBM by \$1.5 billion*. Truth is, 24/7 access to data is now a critical need, not just to your people, but to your public. For example, barnesandnoble.com[™]

is now riding a 380% annual growth curve partly because, since their system was installed (10/98), there's been no significant downtime. It's a Compaq NonStop[®] e-Business Solution, and it was implemented in record time by nonstop Compaq people. To learn more, visit www.compaq.com/warehouse, contact your reseller or call 1-800-AT-COMPAQ.

Compaq StorageWorks

Our storage solutions range from server-mounted systems to modular, networked RAID arrays available 24/7 across multi-vendor IT infrastructures. We also offer an open, standards-based storage architecture that enhances performance and simplifies management of shared resources, dramatically lowering cost of ownership.

Left to right: Compaq AlphaServer, Compaq ProLiant, Compaq NonStop Himalaya



Better answers.™

Wireless LAN group targets interoperability

BY JOHN COX

A new industry group of wireless LAN vendors is taking a novel approach to the market: The group is admitting there's a problem that blocks corporate acceptance of multi-vendor wireless networks.

The problem is that wireless Ethernet products rarely work with each other, and the issue is expected to get even worse as vendors race to bring out new products based on the soon-to-be-finalized IEEE 802.11 High Rate Direct Sequence standard. This new standard uses the 2.4 GHz radio band and runs at 11M bit/sec, which is five to 10 times faster than existing proprietary wireless nets.

The Wireless Ethernet Alliance (WEA), which officially made its debut last week, wants to change all that. The group will craft a set of interoperability tests and hire an independent test lab to administer the tests. Products that pass the tests will be branded with an

Alliance mark

Wireless nets have been widely deployed in certain industries. Overnight shippers, car rental agencies, housing operations and discount shopping chains all rely on handheld devices and bar code scanners linked via a radio connection to servers on LANs.

Wireless alliance

Wireless Ethernet Compatibility Alliance members at NetWorld+Interop '99 Atlanta will unveil details about how they will test wireless Ethernet products to guarantee interoperability.

Founding WEA members:

- 3Com
- Aironet
- Intel (formerly Intel Wireless)
- Lucent
- Nokia
- Symbol Technologies

"But outside vertical markets, wireless was not ready for the general enterprise market," says David Cohen, product manager for 3Com's wireless LAN group.

"The key is [the new IEEE standard that creates] wireless LANs operating at speeds

more traffic that goes through the box, the faster the traffic reaches maximum throughput, Macro says.

If the mix of traffic from the site changes, Accelerator 4000 readjusts to maximize compression, he says.

The device must be used in pairs, with one at each end of a connection. All the information the receiving Accelerator 4000 needs to decompress packets is included in the compressed packet.

Expand was founded in 1988. The company has 50 employees and research and development facilities in Israel.

Accelerator 4000 is available now for \$50,000 per pair. The company is working on versions for frame relay, T3 and OC-3 lines.

Expand: www.expand.com

equal to or even greater than wired Ethernet," says Phil Belanger, WEA's chairman. "There's been a much more positive response from enterprise net managers to these higher bandwidths."

Wireless nets consist of a radio interface card that runs in the client device and an "access point" or receiver-transmitter that attaches to the backbone. WEA's interoperability testing will ensure that a corporate customer could buy a mix of these

products from different vendors and be certain they'll work together.

The WEA tests will also address another issue: ensuring that a user moving through a warehouse and having to switch from one access point to another, for example, will be able to do so smoothly, even if different brands are used. The IEEE standard has only a sketchy definition of this roaming connection.

"We feel, based on preliminary discussions with our

technical committee, that we will be able to do a successful transition between different vendors' access points," Belanger says.

At NetWorld+Interop '99 Atlanta next month, WEA will disclose some of the technical details of the tests, along with the naming the testing lab, the unveiling of a more complete Web site and the announcement of additional members.

The IEEE is expected to give final approval to the 802.11 standard in November, Belanger says.

WEA: www.wirelessether.net.org

Prestolite tunes cabling for Fast Ethernet

Company's TrueNet system ensures maximum throughput across the LAN.

BY JIM DUFFY

A new cabling system from a Midwest company may solve LAN throughput problems that heretofore were undetectable by network managers.

Prestolite Wire of Southfield, Mich., has unveiled a cabling system for 100Base-T LANs designed to prevent bandwidth and data loss over Category 5 unshielded twisted pair (UTP) wiring.

Full performance

The cabling system, called TrueNet, was developed to ensure that users upgrading from 10Base-T to 100Base-T get the full performance of the tenfold increase in bandwidth they expect.

TrueNet consists of horizontal cable, patch cable, jacks and patch panels for connecting clients to servers. TrueNet is designed to protect Ethernet signals from impedance problems that sap performance and cause data loss.

Mismatch

For instance, if there's an impedance mismatch on the cabling between the client network interface card and

the patch panel, and the patch panel and server NIC, throughput could drop off dramatically because frames would be dropped and have to be retransmitted.

If 1% of data needed to be retransmitted, the data rate on a 100M bit/sec link would

+/- 3 ohms.

The result, company officials say, is improved impedance matching between patch cords and horizontal cabling, resulting in less data being retransmitted. Lower retransmission means higher data rates.

Bandwidth threat

When frame retransmissions are required due to lost Ethernet frame data, network bandwidth takes a hit. Having properly matched cabling and patch panel equipment can reduce frame data loss.

Maximum percent of retransmissions on network	Data rate (in M bit/sec)
0%	100
1%	20
2%	4
3%	8
4%	16
5%	32

SOURCE: PRESTOLITE WIRE CORP. (UNPUBLISHED DATA)

drop to 20M bit/sec, a decrease of 80%, according to Prestolite.

Standards organizations have allowed a +/- 15 ohm variation in the impedance differential between Category 5 UTP cord and horizontal cabling. Prestolite has decreased that differential to

Performance guarantees

Indeed, Prestolite is offering a five-year guarantee of zero bit error performance on its TrueNet structured wiring products.

"There are a lot of customers who aren't really aware of the issues they have with their cabling infrastructure," says Esmeralda Silva, a LAN analyst at International Data Corp. in Framingham, Mass. "If there's a tool that allows you to bring Category 5 cabling up to spec, it's valuable to the end user."

Prestolite developed TrueNet in conjunction with Krone, a German company that develops cabling systems for high-speed data networks.

TrueNet costs about \$65 per node and is available now.

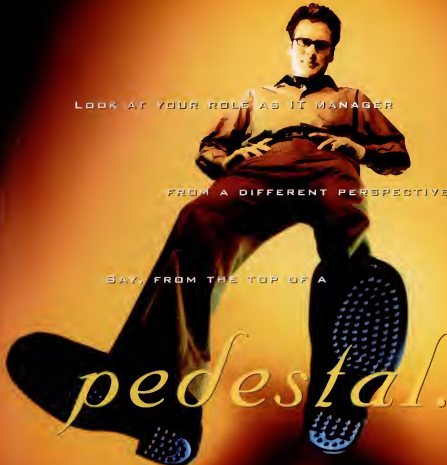
Prestolite: www.prestolite.wire.com

Expand,
continued from page 17

and payloads.

The box then applies compression algorithms to each packet type to minimize the size of the packets before they are sent out onto the T3. The Accelerator 4000 is programmed to recognize certain types of packets, such as PPP or IP, but it can also analyze traffic such as AppleTalk, according to Expand President Talmon Macro.

After the box analyzes the traffic from a site, Accelerator 4000 modifies the algorithms to achieve maximum compression for the traffic mix at that particular site. During use, the performance of the box improves over time as the Accelerator 4000 adapts to the traffic patterns. The



LOOK AT YOUR ROLE AS IT MANAGER

FROM A DIFFERENT PERSPECTIVE.

SAY, FROM THE TOP OF A

pedestal.

See your network from our point of view, and you'll never look at it the same way again. Network Health is the software analysis and reporting solution that lets you control your network's efficiency, make smarter budget decisions and defend your recommendations with evidence that no one will dare challenge. To learn more about what we can do for you and your network, visit www.concord.com or call 1-800-851-8725 or 508-460-4646.



CONCORD.

The Total View™

Visit us at Booth #5218 at N+I Atlanta

Develop a new approach



Spend less time

eciation for adapters.



Intel® Single Driver Technology lets you manage PCs, notebooks and servers as one—so you can concentrate on the big picture.

You probably don't view adapters as mission-critical. But if that's what they're taking time from, maybe you should. Now there's a way to take that time back. Intel® Single Driver Technology lets you control your Intel® Fast Ethernet connections as one. So set-up and maintenance are simplified. Yet another reason why leading manufacturers offer Intel adapters in their PCs, notebooks and servers—and why network professionals are asking for them. Visit our Web site today and see how Intel Single Driver Technology can give you more quality time with your network. → intel.com/network/appreciate



intel.

© 1999 Intel Corporation. Intel is a registered trademark of Intel Corporation.

me with them.

Does the
bandwidth you need
seem out of reach?



Sign up now and
save
\$10,000*
on installation
and monthly charges.

For scalable, high-bandwidth Internet connectivity at a great price, choose **PSINet Multi-T1 Service** and help your business reach new heights.

PSINet wants to give you a boost.

To get a competitive edge in today's e-commerce environment, you need bandwidth that scales with your business. PSINet's innovative **Multi-T1™ Service**, powered by state-of-the-art routers from Xedia®, allows you to increase your Internet capacity in multiple T1 increments—from 3 Mbps all the way up to 10.5 Mbps—quickly and affordably.



1-888-774-9286
www.psinet.com



*Limited offer. Restrictions may apply. © 1999 PSINet Inc. "The Internet Starts Here" and "Multi-T1" and the PSINet logo are trademarks of PSINet Inc. "Xedia" is a registered trademark of Xedia Corporation.

Free Product Info enter NWInfoXpress #83 online @ www.networkworld.com/infoXpress

Wired Windows

Dave Kearns

ACTIVE
DIRECTORY:
AGREE TO
DISAGREE

There was a fair amount of fallout from my column "A flaw in Active Directory?" (Aug. 16, page 28). But, most people agreed with my assessment of potential problems with Microsoft's Active Directory replication and synchronization strategy.

[Aside: For the user at Microsoft, whose name may be Shawn but signs his e-mail "LCA Dude" and who uses a host machine called tide70.microsoft.com — you need to learn how to create truly anonymous e-mail. At least when employees at Novell or IBM disagree with me, they sign their real names.]

I did spend an enjoyable hour talking to Pete Houston, Active Directory's lead product manager. Houston came to Microsoft from IBM and has a very solid grounding in databases. In particular, he appears quite knowledgeable about distributed, replicated databases.

There was very little we disagreed on but, alas, the item that was the focus of my last column was at the top of the list.

When changes are propagated throughout the replicas of the directory, it's important that they be applied to all copies in the same order. Active Directory uses a serial number sequence to decide the order of changes and when there's a discrepancy, falls back on a number of so-called tiebreaker decision points to decide which changes will be made

and which will be rejected.

Houston and I agree that consistency among all copies of the directory is important. We differ in that Houston believes consistency is all that matters, while I believe that consistency is important, but accuracy is almost as important.

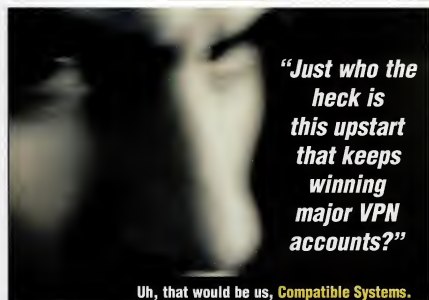
It's a classic confrontation between a

database manager and a network manager. We agreed to disagree.

We went on, though, to imagine the next generation of directory service — a generation that would use rules and policies to determine which update succeeds and which doesn't. Imagine setting up a hierarchy so that anytime there is a discrepancy in updates, the

higher ranking person's changes would "win." I'd like to hear your thoughts on how that might work.

Get Kearns' free Windows NT newsletter via e-mail twice a week. Go to www.nwfusion.com/focus/index.html and sign up for the latest NT news.

"Just who the heck is this upstart that keeps winning major VPN accounts?"

Uh, that would be us, Compatible Systems.

Our IntraPort® family of VPN Access Servers **wins more business because it meets industry standards and real customer needs:**

- Integrated SLA monitor
- RADIUS, SecurID and X.509 user authentication
- Broadest Client Software Support — Windows 95, 98, NT, Macintosh, Linux and Solaris — at no additional charge
- Fully IPSec compliant
- Y2K compliant

Daily Compatible Systems gives you this **much VPN scalability:**

- Remote access support from 84 client connections (IntraPort 21 to 40,000 connections at more than 600 Mbps (IntraPort Enterprise-II))
- LAN-to-LAN support from 16 to 512 simultaneous connections
- The most complete and scalable VPN product line available

Since January, our VPN solutions have been chosen by demanding organizations such as:

Apple Computer
ENTEX Information Systems
Amazon.com
Motorola
Jet Propulsion Laboratory
U.S. Dept. of Energy
Westinghouse
PSINet
Pacific Stock Exchange
Yankee Group

and nearly a thousand companies like them.

To find out why, call 1-800-356-0283, or visit www.compatible.com/

Visit us in **Booth 7330** at
Network+InterOp Atlanta
September 14-16 to get your
complimentary copy of our
Technical Evaluator's Guide,
a straight-shooting guide to VPN.



Compatible Systems
the **VIRTUAL** leader

1.888.356.0283

www.compatible.com/

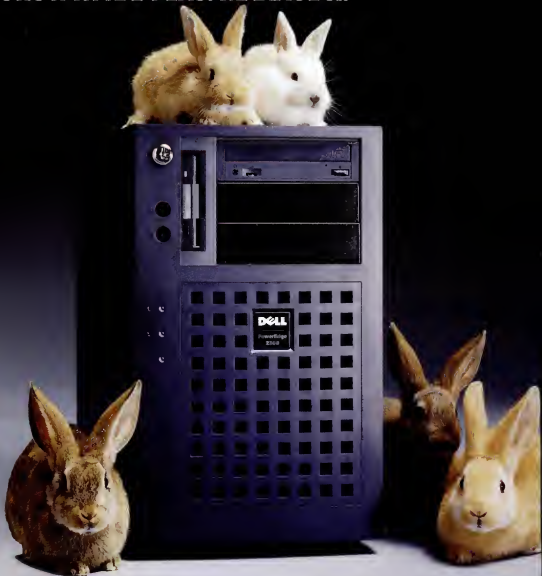
IntraPort, IntraPort Enterprise and IntraPort 21 are trademarks of Compatible Systems Corp. All other product names are trademarks of their respective manufacturers.

Tip of The Week



While Novell and Microsoft provide methods to back up their directory services, they can be very awkward to use. Most backup applications fail to back up the links and references between objects; should you need to restore, this could lead to many manual entries having to be made. There's only one third-party directory backup product: Future Gate's DeTruBler. It's a useful tool for anyone using directory services (www.future-gate.com).

GROWTH HAPPENS. MANAGE IT.



DELL SERVERS, DESIGNED TO GROW WITH YOUR BUSINESS.

Whether you're just starting a network or adding onto a business-critical system, Dell offers a range of reliable servers for your growing business. They have the capabilities to handle basics like file sharing to advanced functions like e-commerce. And along with the usual 7x24 telephone support and three-year next-business-day on-site³ service, you also get 30-day "Getting Started" OS telephone support, perfect for the growing business that needs to keep moving to survive. Call, or visit www.dell.com for your custom-built server today.



The Dell® PowerEdge 1300. An affordable server designed to offer a cost-effective, entry-level network solution.



The Dell PowerEdge 2300. Ideal for growing businesses, the PowerEdge 2300 provides the added reliability of optional redundant hot-swap drives.



The Dell PowerEdge 4300/4300. For additional redundancy and increased availability, turn to the PowerEdge 4300 and 4300 servers, featuring redundant hot-swap hard drives, power supplies and cooling fans.

DELL POWEREDGE 1300	starting at \$1,750	FEATURES	RELIABILITY/AVAILABILITY	E-VALUE CODE: 3117-29005
Up to dual Pentium® III Xeon™ Processors at 500MHz	Business Lease ² starting at \$24/Mo., 36 Months	2GB up to 4GB ECC EDO RAM 9GB (1,200 & 10,800 RPM) up to 36GB Ultra-2VIO SCSI Hard Drives Up to 25GB Internal Storage Capacity	ECC Memory, RAID Capable, Hot-Swap Hard Drives, Hot-Swap Power Supplies & Cooling Fans, Hot-Swap PC-ready Slots	
DELL POWEREDGE 2300	starting at \$1,900	FEATURES	RELIABILITY/AVAILABILITY	E-VALUE CODE: 3117-29004
Up to dual Pentium III Processors from 450MHz - 600MHz	Business Lease ² starting at \$15/Mo., 36 Months	1GB up to 2GB 100MHz ECC SDRAM 9GB (1,200 & 10,800 RPM) up to 36GB Ultra-2VIO SCSI Hard Drives Up to 25GB Internal Storage Capacity	ECC Memory, RAID Capable, Hot-Swap Hard Drives, Hot-Swap Power Supplies & Cooling Fans	
DELL POWEREDGE 2300	starting at \$1,999	FEATURES	RELIABILITY/AVAILABILITY	E-VALUE CODE: 3117-29006
Up to dual Pentium III Processors from 450MHz - 600MHz	Business Lease ² starting at \$67/Mo., 36 Months	64MB up to 2GB 100MHz ECC SDRAM 9GB (1,200 & 10,800 RPM) up to 36GB Ultra-2VIO SCSI Hard Drives Up to 14GB Internal Storage Capacity	ECC Memory, RAID Capable, Optional Hot-Swap Hard Drives	
DELL POWEREDGE 4300	starting at \$16,495	FEATURES	RELIABILITY/AVAILABILITY	E-VALUE CODE: 3117-29006
Up to dual Pentium III Processors from 450MHz - 600MHz	Business Lease ² starting at \$60/Mo., 36 Months	64MB up to 1GB 100MHz ECC SDRAM 9GB up to 36GB Ultra-2VIO SCSI Hard Drives Up to 19GB Internal Storage Capacity	ECC Memory, RAID Capable	

COMMON FEATURES: 512KB Integrated L2 ECC Cache, Intel® Pro/100+ PCI Ethernet Adapter, Integrated Ultra-2/VIO SCSI Controllers, 40K Max Variable CD-ROM Drive, Performance Keyboard, Mouse, HP® OpenView™ NNM Special Edition, Tool-Free Chassis Designers, 3-Year Next-Business-Day On-site³ Service, 7x24 Dedicated Server Hardware Telephone and Online Technical Support

AWARDS: Network Computing's "50 Best Products of the Year" - (E300 Enterprise Server), 5/99 • Network Magazine's "1999 Products of the Year" - (2300-Workgroup Server), 5/99.

888-695-3355



Phone Hours: M-F 7a-7p • Sat 10a-6p • Sun 12p-5p CT • In Canada, call 800-232-4306 • In Mexico, call 01-800-421-4321 • GSA Contract 605-29F-4070D

For a complete copy of Guarantees or Limited Warranties, write Dell USA, P. Attn: Warranties, One Dell Way, Box 12, Round Rock, TX 78682. Prices and specifications subject to change without notice. On-site service may be provided by a third-party provider under contract with Dell, and is not available in certain areas. Hardware will be shipped if necessary following phone-based troubleshooting. For hard drives, 30 months; 1 billion bytes; total accessible capacity varies depending on operating environment. *45 Day. Business leasing arranged by Dell Financial Services, L.P., an independent entity, to qualified customers. Above lease payments based on 36-month lease and do not include taxes, fees, shipping charges, subject to credit approval and availability. Lease terms subject to change without notice. Intel, the Intel logo and Pentium are registered trademarks and Pentium III Xeon is a trademark of Intel Corporation. HP is a registered trademark and OpenView is a trademark of Hewlett-Packard Corporation. ©1999 Dell Computer Corporation. All rights reserved.

BE DIRECT™
DELL
www.dell.com

How to cook up a storage-area network

BY DENI CONNOR

Storage-area networks (SAN) are being adopted more frequently today, but uncertainty still exists among users about why to install them and the applications that can make the best use of them. SANs are high-speed networks, similar to LANs, that connect disk subsystems directly to servers or clients. The idea is to relieve network congestion or bypass distance limitations imposed by traditional SCSI storage connections.

Fibre Channel-based SANs can be configured in several ways and for any number of reasons (see graphic). They can be installed as Fibre Channel Arbitrated Loops (FCAL) or switched fabric networks. They can be local or remote, spanning campuses and using wide-area connections.

Methods for implementing SANs may differ, but most network professionals offer the same recipe from one installation to another: start small and think globally. They recommend implementing small, simple FCAL or switched fabric networks to share data among servers.

"You need to approach SANs with a broader plan than simply dropping in [more storage] and seeing if it is going to be successful," says Lee Congdon, senior vice president of strategic integration and architecture for NASD in New York. NASD is the parent company of the NASDAQ stock exchange.

"You need to plan not only where you are today, but where you want to be tomorrow and then consciously choose the applications that work in the context of a bigger picture," Congdon adds.

Look to your apps

Congdon and other users say to look at your appli-

STORAGE-AREA NETWORKS

Users offer favorite recipes for properly implementing SANs.

cations to determine which applications warrant adding a SAN and which will do just as well on server-attached RAID. They say to begin with a small, low-impact or low-budget application, such as consolidating several servers to the same storage device, before moving to full-blown implementation. From this application, users can test the "proof of concept," and then grow the SAN to involve more of the routine tasks of the data infrastructure. For example, data replication and creating multiple active copies of data that would increase utilization or ease maintenance and testing operations.

Users also recommend dividing applications into categories based on importance. For mission-critical application data, users need to design in redundancy and fault tolerance with duplicated storage, switches and host bus adapters, so there is no single point of failure.

For example, at NASD, Congdon has several Sequent NUMA servers running Unix connected via a Fibre Channel switch to a single EMC Symmetrix disk subsystem. Dwight Gibbs, chief technical fool at The Motley Fool, connects Windows NT servers via a hub to a Compaq StorageWorks disk array; and Bruce Covey of Home Depot in Smyrna, Ga.,

connects numerous Macintosh workstations to Avid video editing storage via a Fibre Channel hub.

Prepare for future

Not surprisingly, users have implemented SANs in different ways, but most are preparing for future growth.

For example, Congdon's switched fabric SAN will be able to easily expand as he adds more applications. The Motley Fool and Home Depot use FCAL and will need to migrate to a switched fabric architecture before they can add any more servers, clients or applications to their SANs.

Users agree, though, that relying on a systems vendor or integrator for your first SAN implementation is the wise route.

Gibbs says you should also expect your vendor to guarantee interoperability between Fibre Channel and SCSI devices.

"I want a 60- to 90-day money-back guarantee. If it works, I'll keep it. If not, I want to return it. So far, I have not run into a situation where we just couldn't make something work," Gibbs says.

While Congdon generally agrees with Gibbs, he takes vendor participation a step further. He thinks that it is reasonable to choose a vendor to implement a limited package. He adds that it is unlikely a vendor would be able to completely understand business applications and where a midsize to large business is going.

Congdon and Gibbs also believe the plan for a data infrastructure closely parallels the network and systems infrastructure. Blending the three into a single cohesive network is necessary to the planning. That way, storage becomes another infrastructure resource that users can manage. This strategy

also helps ensure network, applications and other groups in the enterprise network environment interoperate.

Successful SAN implementation also depends in large part on getting the approval of management, says Steve Rigney, a consultant with NetReference in Sterling, Va.

For example, Congdon's SAN is just the start of a much larger SAN implementation that management has approved and provided the funds for. He wouldn't have the SAN if he hadn't convinced people of the cost savings and benefits of centralized storage solutions over stovepipe storage growth.

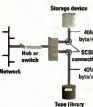
"Ensuring that you get a properly funded program and a disciplined investment plan rather than budgeting in fits and starts is important," Congdon says. "You don't want the first application to have to bear all the cost. You need to think about planning for this, investing in it, and then allocating the cost back to the business across multiple applications." ■

Fitting in Fibre Channel

Here are some details about the common storage-area network technologies.

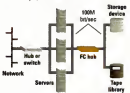
SCSI

- Supports only 16 devices per controller
- 80M byte/sec transfer rate
- Limited to a distance of 70 feet between devices



Fibre Channel Arbitrated Loop

- For small SANs with little growth potential
- Good for single low-impact application
- Easily supports multiple workgroup environments
- Supports up to 128 devices per loop
- 100M byte/sec transfer rate



Switched fabric

- Highly scalable
- Can support multiple mission-critical applications
- Good for large data center environments
- Provides equal access to stored data through switch
- 100M byte/sec transfer rate
- Overall distance of 32,810 feet between devices





Systems Transformer

Name:	Hopie Davis
Job Description:	Show companies how to leverage mainframe capabilities in server environments.
Experience:	Helped a government agency reconfigure its mainframes, increasing efficiency and cutting maintenance costs by 52%.
Quote:	"A fine-tuned network of multiprocessing Parallel Sysplex* systems really is a thing of beauty."
Phone:	1 800 IBM 7777, ask for Services
Web:	www.ibm.com/services/info

IBM Global Services

People who think. People who do. People who get it.



IBM®

Get to booth #5129 at Networld + Interop '99
for your chance to win a VXA-1 tape drive.

**OUR NEW
TAPE DRIVE
RESTORED IT.
END YOUR
DATA LOSS
JITTERS.**



CONFIDENCE RESTORED™



We poured very hot coffee on one of our tapes and later read it using the new 66GB, 6MB/SVXA-1 tape drive, which starts at just \$1295*. Result? 100% data restore. How? New technologies like data packet format, variable speed and overscan. Huh? Get all the facts, including software compatibility details at vxatape.com/extreme. Or visit ecrix.com/offer for a chance to win a VXA-1 tape drive.

*Figures include 2:1 ALDC hardware compression. \$1295 MSRP for internal kit.



Carriers & ISPs

The Internet, Extranets, Interexchange
and Local Carriers, Wireless, Regulatory Affairs

Briefs

PSINet last week announced plans to acquire **Transaction Network Services** in a deal worth \$720 million. PSINet is expected to hand over \$351 million in cash, and the rest will be made up of stock. Transaction Network Services is one of the largest point-of-sale (POS) service providers. As more and more merchants go online, the need to partner with an IP network service provider such as PSINet has become more important to Transaction Network Services. PSINet has a global IP network and Transaction Network Services has customers that want to transition their POS services onto the 'Net.

PSINet: www.psinet.net; Transaction Network: www.tnsl.com

Corio, an application service provider in Redwood City, Calif., last week named **Georgia Kadra** to the company's new president and CEO. Kadra was most recently a senior vice president at Oracle. Kadra replaces **Jonathan Lee**, founder and now former president and CEO. Lee will work closely with his successor as the company's chief strategy officer. Corio: www.corio.com

DSLNetworks last week announced that it now sells digital subscriber line (DSL) services in 30 markets across the U.S. The company says its coverage is larger than any other DSL carrier's. That may be because it uses other carriers to set up the DSL lines. These include major DSL specialists **Covad Communications**, **NorthPoint**, **Rhythms** and **Network Access Systems**, as well as **Pacific Bell**. DSLNetworks sells DSL at speeds from 128K bps/sec to 7M bps/sec, and can link customers to the Internet or virtual private networks.

DSLNetworks: www.dslnet.com

Telecom giants spreading venture seeds

AT&T, MCI WorldCom and Lucent backing scores of networking start-ups.

BY CAROLYN DUFFY
MARSSAN

With venture capital investments in network start-ups at record levels, the nation's largest telecommunications companies are looking for a piece of the action.

The venture arms of AT&T, MCI WorldCom and Lucent have all ramped up their investment activities this year, and much of the money is going to commercialize products and services for enterprise customers.

"Every major technology company now has some sort of venture capital operation," explains Kirk Walden, national director of venture capital research at PricewaterhouseCoopers. "They're all looking to make direct equity investments in emerging companies. Some cynics call that outsourcing research and development, but I don't have any problem with it. It's a way of bringing innovation to the market faster."

Following in the footsteps of active investors such as Intel and Microsoft, these three telecommunications companies together have invested \$740 million in more than 100 network companies.

Among the enterprise-oriented technologies being targeted with investment dollars are digital subscriber line (DSL) services, Web-based customer support, virtual private network (VPN) equipment and telecommuting applications.

DSL, in particular, appears to be benefiting from investments by these three

sources. Recipients include: Covad Communications, a Santa Clara, Calif., provider of DSL services; Rhythms, an Englewood, Colo., provider of DSL-based telecommuting services; and Jetstream Communications, a Los Gatos, Calif., manufacturer of voice gateways for DSL.

See Venture, page 34

Investing in tomorrow's networks

A breakdown of the venture arms of three leading telecom companies.

Name	AT&T Ventures	Lucent Venture Partners	MCI WorldCom Fund
Year founded	1992	1998	1999
Investment strategy	Early-stage, \$1M-\$5M, 5-7 years, active investor	Early-stage, \$.5M-\$5M, active investor	Later-stage, \$5M to \$10M, active investor
Investments outstanding	\$355M, 70 companies	\$75M, 18 companies	\$300M, 24 companies
Target markets	Wireless, Internet, value-added networking, content, local services	Optical networking, data networking, communications semiconductors, wireless	Broadband access, next-generation networks, enhanced communications services
Enterprise portfolio	Avesta Technologies Onsite Access Covad Communications VeriSign First Virtual	Convergenet Manage.Com Octave Software	Rhythms NetConnections Jetstream Communication Indus River WebLine Communications
Web site	www.attventures.com	www.lucent.com	www.mciworldcom.com

PSINet offering secure customer service tools

BY DENISE PAPPALARDO

HERNDON, Va. — PSINet is piloting its new customer service Web site by deploying a public-key infrastructure (PKI) system that offers business users a secure method of viewing and changing their account information over the 'Net.

The ISP is rolling out Xcert's PKI Sentry CA 3.6 technology to protect its Secure Online Support Center Web site, which houses sensitive customer account data. PSINet will issue Xcert digital certificates to authenticate customers who log on to access information about their accounts, submit trouble tickets or review IP address data.

PSINet is one of the first ISPs to install its own PKI system, says Eric Hemmendinger, an analyst at Aberdeen Group, a consulting firm in Cambridge,

Mass. The handful of other ISPs that have announced digital certificate and PKI support are using third-party digital certificate authorities, such as Entrust or VeriSign, Hemmendinger says.

The PSINet-issued digital certificates are essentially electronic identifiers based on public keys that are unique to each customer. Before issuing the certificates, users have to complete a form specifying which accounts that user needs to access. Once PSINet verifies each user's form, it will issue a digital certificate along with instructions on how the certificate needs to be installed on a user's Web browser.

Today, PSINet's Secure Online Support Center lets users look at their accounts and change contact information as well as submit trouble tickets. PSINet is planning to add capabilities this year that will let

users make changes to their Domain Name System.

PSINet has many financial and federal government customers that cannot have account information sent over the Internet without protection, says Mike Hattala, manager of customer support engineering at PSINet.

PSINet also plans to use the PKI system and digital certificates to make other services more secure, Hattala says. Services such as e-mail application hosting and managed virtual private network offerings can benefit from stronger encryption and user and network authentication, he says, but the company is still evaluating how it can expand PKI capabilities to other services.

Senior editor Tim Greene contributed to this story.

Reliable. Manageable. Scalable. Affordable.

(Congratulations, you finally met the server of your dreams.)



**7200 Expandable Workgroup server
(at an entry-level server price)**

- Easy set up and manageability features
- Upgradable to hot-swappable hard drives
- Integrated 10/100 Ethernet adapter, 2MB video controller and dual channel Ultra2 SCSI controller
- Expansion capacity for over 100GB hard disk storage
- 100MHz ECC SDRAM memory (scalable to 1GB)
- Starting at \$1640 (with single 5GB hard drive, Intel® Pentium® III 400MHz tower chassis, 64MB memory)



**8200 Ultrascable Departmental server
(at a workgroup server price)**

- Expandable to up to 12 hot-swappable hard drives w/capacity up to 324GB
- Load-sharing, redundant power supplies
- Integrated 10/100 Ethernet, 2MB video controller and dual channel Ultra2 SCSI controller
- Also available in 4U rack configuration
- Starting at \$2599 (with single 9GB hard drive, Intel Pentium III processor 400MHz tower chassis, 128MB memory)

Not only do these servers have everything necessary to keep your business running efficiently, but they're made by Gateway, which means you get more. Client care packages. Business solution centers. Leasing options. Outstanding service. Not to mention, a relationship that will grow with your business. When you buy from Gateway, you're not only getting the best technology for your business, you're getting peace of mind to go with it.

- Stable platforms with an 18-month lifecycle
- Built with reliable, industry-standard technology
- 24/7 basic tech support and 3-year limited warranty with on-site service¹. Available four-hour on-site with parts option
- Multi-processor capable
- InforManager™ integrated SNMP-compliant server management system
- Microsoft® Windows NT® server, Novell® Netware® and SCO® Unix® certified.



**9250R Rack-mounted
Enterprise-class server**

- 4U (7-slot) rack optimized chassis
- Smallest form factor four-way Intel® Pentium® III Xeon™ processor-based server
- High value with **uncompromised** performance
- Scalable to 4GB of RAM
- Utilizes slim line CD-ROM and floppy drive for maximum space efficiency
- Starting at \$3499 (with single 9GB hard drive, one Intel Pentium III Xeon™ processor 500/512, 256MB memory)



CALL
1-888-888-0779

CLICK
www.gateway.com

OR COME IN TO A GATEWAY BUSINESS SOLUTIONS™ CENTER
Gateway Country®

Keyboards, portable docking stations, external peripherals and monitors. You may be asked to take your PC to a Gateway location for warranty service. See agreements for specific terms and limitations. All Server 4-hour dispatch customers: Gateway will attempt to resolve your issue remotely. If this is not possible, Gateway will dispatch a technician. Gateway cannot guarantee that your issue will be resolved in any particular time. 4-hour dispatch service is not available in all locations. See agreements for specific terms and limitations.

Free Product Info enter NWInfoPress #85 online @ www.networkworld.com/infoxpress

Venture,
continued from page 31

Both Covad and Rhythms weat public this year.

"Part of the reason DSL technology has grown so rapidly is because of its

access to the capital markets," says Susan Mayer, president of the MCI fund. Mayer says broadband access technologies such as DSL are one of three target areas for the MCI WorldCom Fund. The other two are next-generation Internet technologies and enhanced commu-

nications services.

By investing in emerging companies, the telecommunications giants are looking to get an edge with technologies that will enable future products for enterprise customers as well as new applications that will drive traffic

to their networks. Often the financial investments are accompanied by strategic partnerships.

"We're not just looking for financial returns. We're also looking for good strategic fits or companies that fill gaps in our product line," says John Hanley, managing general partner of Lucent Venture Partners.

Hanley says Lucent's venture activity is part of a larger effort to cut the time it takes for a product to move from the drawing board to the manufacturing line. "We've cut our cycle time by about 50% in the last three years," he says. The venture activity is "one way to find technologies that will be important in three or four years."

Like Lucent, the MCI WorldCom Fund is looking for strategic relationships as well as strong financial returns from its investments. That's why the fund was attractive to WebLine Communications, a Burlington, Mass., provider of Internet customer service software that had its choice of investors when it raised \$10 million in early August. WebLine officials say they selected the MCI WorldCom Venture Fund because they viewed MCI as a strategic partner.

"MCI was already a WebLine customer before they came to us about a corporate investment," says Bob Weinberger, vice president of marketing at WebLine. "Money is really a secondary benefit in a situation like this."

AT&T Ventures, on the other hand, is more interested in pure financial returns than in complementing AT&T's product lines.

"We view ourselves out as a business development function but as a group trying to affiliate with the best companies in emerging technologies," says Neal Douglas, general partner with AT&T Ventures. "We're invested very broadly in IT from semiconductors to cable content, from terrestrial routers to city guides, from Internet security to Internet payment systems."

Both AT&T and Lucent are investing in start-ups that don't have products yet. MCI WorldCom, on the other hand, is targeting existing companies but giving them more money.

Regardless of the approach, all three funds have a major focus on enterprise customers.

"Typically, the best application of technology where there's a viable payback model is addressing the business customer," Douglas says. "For example, we're investing in equipment that helps carriers provide better managed services to their enterprise customers."

Other areas that AT&T Ventures is focused on include technologies that bring high-speed, cost-effective bandwidth to enterprise customers as well as technologies that drive electronic commerce, such as payment systems. ■

Have issues about

CONTROL?



Master the art of delegation by engaging
Interliant's remote server management option.

Your on-site hardware, our
efficient off-site management

Look after your business
instead of your servers

24 x 7 administration, monitoring
and performance tracking

A scalable solution at
a predictable cost

Unmatched security

Act now and receive free
hosting for two months

Interliant Solutions @Work

When a manufactured housing retailer with hundreds of home centers nationwide needed a powerful solution to provide better customer service and enable JIT manufacturing, the challenges were many. The company's geographically dispersed staff of computer novices needed ready access to information as well as collaborative tools. In addition, an aggressive timeline and stringent cost-efficiency imperatives meant additional IT staff was out of the question.

By leveraging the bandwidth and expertise of Interliant, the world's leading hosting services provider, the company handily achieved its objectives. Working closely with its IT personnel and application developers, Interliant implemented a large, stable and scalable WAN that links servers at each retail location to manage inventory, track customer leads and provide messaging — all with minimal use of staff resources. And, thanks to clearly defined standard hardware and software configurations, fully functional replacement units can ship within 24 hours in the unlikely event of a hardware failure.

Now you can achieve the impossible without stretching your resources to the limit. It's all within your control with Interliant's remote server management option.

www.interliant.com/control or 1-800-326-9585

Interliant
BUILDING GLOBAL COMMUNITIES

© 1999 Interliant, Inc. Interliant and Building Global Communities are registered trademarks, and the Interliant logo is a trademark of Interliant, Inc. *When you register by September 15, 1999.

Free Product Info enter WnInfoExpress #79 online @ www.networkworld.com/infopress

What if you could roll out new enterprise applications in hours instead of weeks?

Today you can.



Deploying business-critical applications to users around the world is a must for today's growing enterprises. And to do it fast, thousands of organizations are relying on Citrix® server-based computing software.

With Citrix software, you can deploy the latest HR, ERP, personal productivity, customer billing or other applications in just hours, making it a great solution for delivering Y2K-compliant versions. Citrix software is also flexible so you can leverage existing devices and connections while ensuring access to any application, anywhere, anytime. This way, users get up and running faster and you save money.

To learn how to make everything in your enterprise compute, get your **FREE** *Rapid Application Deployment* white paper.

FREE Rapid Application Deployment white paper!
Learn how you can get faster application deployment
with Citrix server-based computing software.
Call 888.415.4304



Now everything computes.™

CITRIX®

Just another day

NEW
E-COMMERCE
WEBSITE

CONNECT
ALL BRANCH
OFFICES

100 NEW
VOICES, SAME
BACKPLANE

ONE MILLION
UNEXPECTED
WEB HITS



at the office.

**Take today's demands in stride
with Intel's flexible networking solutions.**



In the non-stop Internet economy, you never know exactly what's coming. But when it comes, you find out just how good your network really is. Now you can prepare for what's ahead with Intel® networking solutions. Intel Express 500 Series Switches let you deploy Fast Ethernet switching to optimize port performance and reduce traffic congestion. Intel Server Adapters provide scalable bandwidth to maximize performance for mission-critical servers. And Intel's LanRover VPN Gateway™ lets



you easily connect employees, customers and partners to e-business systems. Get ready for the inevitable. Get Intel's scalable networking solutions and get down to serious e-business. For more details, and to locate an Intel Authorized

Solution Provider, visit us on the Web. ➔ intel.com/network/ready



intel.

**MIGRATE
ALL APPS
TO LAN**



Wan Monitor . Daniel Briere and Christine Heckart

WHAT ORGANIZED CRIME AND CONVERGENCE HAVE IN COMMON

"Convergence will save you money."
"Convergence will reduce time spent on network management."
"Voice over data delivers . . . blah,

blah, blah."
Boring. If you've talked to any equipment vendors or service providers in the past 12 months, you've probably

heard this stuff dozens of times. These reasons for convergence may be valid; however, the real reason is *power*.

Think of convergence like Tony

"Scarface" Montana would. As Tony says, "In this country, you gotta make the money first. When you get the money, you get the power. When you get the power, you get the woman." For convergence, this becomes: "In this company, you gotta get the data first. When you get the data, you get the voice. When you get the voice, you get the power."

A war is brewing inside corporations. Most companies have telecom staffs separated along the lines of voice and data. Convergence is blurring these lines and presents an opportunity for one of these groups to expand into the other's territory — not only to get a piece of the action, but also to take control. You become the big boss; you control the agenda.

You must make the first move, and here's why: If you don't, the voice group might.

How do you make your move? You can't simply go into a meeting and say, "I think we should move our voice network to the data network, and I will be the head of the combined department."

We asked our convergence hit man, Tom Jenkins, for his advice:

First, skim fax traffic to the data network. Fax machines can easily be categorized as "data" equipment because they digitize information, don't transmit voice and are seen as being replaced by e-mail (although the latter is not true). Fax usually accounts for 40% of a company's "voice" communications costs.

Then nuke off the voice mail and other non-real-time voice components. Once again, because this information is stored before being delivered to users, it can be viewed as being similar to e-mail, which is also stored and non-real-time.

Now it's time to siphon off the internal voice traffic to the data network. Usually this requires nothing more than a new gateway device (and some incremental bandwidth) at each of the sites you decide to convert to voice over data. The justification is obviously the economic one: your equipment vendors are always emphasizing. Let them help you with the business case.

Finally, if you want it, you can make a deal with a service provider that can transport your external voice traffic via its data network with a connection to the public switched telephone network for termination to any location around the globe.

So now you're the don of the company network. Better watch you're back, though. Remember, Scarface did not survive the movie.

Briere is president and Heckart is vice president of TeleChoice, a consultancy in Boston. They can be reached at dbriere@telechoice.com and chheckart@telechoice.com.

QUEUE MOVEMENT SUPERIORITY

WHAT DOES QMS MEAN TO YOU?

Spooling, loading, queuing. No matter what you call it, waiting for documents to print can bring your productivity to a halt. But award-winning QMS® laser printers solve your network traffic problems with print speeds of up to 40 pages per minute. Featuring web-based printer management, job spooling and serverless printing, QMS print systems make the most of your network bandwidth and your time. So your team can make the most of the work day.

Network Laser
Printers Starting As Low As
\$1299*



Laser printers that enhance your vision.

1-800-392-6247
www.qms.com

All prices in U.S. dollars. * \$1499 (MSRP). The QMS logo, and model numbers are registered trademarks of QMS, Inc. All other trademarks or registered trademarks are the property of their respective owners. © 2000 QMS, Inc. All rights reserved. 3/99

WNWinfoXpress #M3 @ www.bobstewartworld.com/infopress



Briefs

BMC Software last week announced management software for SAP's Business Information Warehouse (BW) database software. BMC Patrol for BW measures the response time of end-user queries to the database and tells the administrator which queries are most often used. The software is shipping for \$780, and it runs on Windows NT and several variations of Unix. BMC: www.bmc.com

Mirapoint, in Cupertino, Calif., will announce this week sharp price cuts for its dedicated IP-based messaging services and two new offerings aimed at smaller businesses and remote offices. Mirapoint's Enterprise 210, 220 and 230 models are designed for 300, 600 and 1,000 users, respectively. Prices range from \$8,995 to \$20,995. Mirapoint's products are designed and optimized for e-mail services. The products support SMTP, POP3 and IMAP4 messaging standards and offer a host of security features, including Secure Sockets Layer and SSH encryption and Kerberos support. Mirapoint: www.mirapoint.com

Globalevents Computing last week shipped Pylon ServerSync 2.5 Gold, which allows custom Notes databases to be distributed simultaneously to multiple users of 3Com's PalmPilot. ServerSync lets users roll out Palm devices using a single server and keep both desktop and network-connected handheld users fully synchronized with corporate Notes databases, mail, contact lists and calendars. The software runs as a Domino 5.0 "add-in-task" to consolidate administration and security, and is integrated with Globalevents' PylonPro, which translates custom Notes databases into Palm applications. The software, available at www.globalevents.com, is priced at \$1,195 per server.

Sybase wares target e-comm world

BY JOHN COX
AND JUAN CARLOS PÉREZ

Sybase last week announced several new, upgraded products and outlined a plan to sell software to customers who want to link new Web applications with existing enterprise network systems.

Sybase is betting that big customers want software vendors to help them bridge the gap between relatively simple Web documents and forms and existing back-end transaction systems.

Sybase CEO John Chen says the company's products — databases, application servers and development tools — will supply the elements to create and connect both ends of these systems.

Focusing on an emerging, high-growth market makes sense for Sybase, which has traditionally been a player in the now-mature database market, says Tom Koulopoulos, president of Delphi Group, a consultancy in Boston.

The Sybase products announced last week include:

- Adaptive Server Enterprise 12.0. New features in this database upgrade include Java support, in the form of an integrated Java Virtual Machine; more XML support for tasks such as storage and querying; and server failover support, Sybase says. The product is scheduled to ship in October or November, and pricing will be announced at that time.

- Enterprise Event Broker. This new middleware product is part of the compa-

ny's EnterpriseConnect family and is designed to capture, transform and deliver
[See Sybase, page 44](#)

More Online

- Product details from Sybase.
- An article outlining Sybase's e-comm strategy.
- Download white papers about Sybase's enterprise applications.

www.nwfusion.com

Utility helps Exchange shops track, audit e-mail use

BY JOHN FONTANA

With e-mail quickly becoming as indispensable to enterprise net customers as the telephone, MicroData Group thinks tools to track the use of messaging should be as sophisticated as those for the phone.

To make that point, the consulting firm is jumping into the software business with the release of Microsoft Exchange Log Import Agent (MELIA). The tool lets customers track messages sent and received by Exchange based on user, department or a host of other parameters. Administrators also can track peak traffic times and the size of messages and attachments. The software comes with nearly 50 report templates for extracting data about message flows in Exchange.

MELIA is designed to help organizations that need to account for e-mail usage, such as law firms and others that bill on time. But it also provides users with an accurate audit trail for correspondence, especially over the Internet.

"IT groups, business units and users alike are interested in more granular controls to bill back for e-mail usage," says Matt Cain, an analyst with Meta Group in Stamford, Conn. "MicroData really is addressing a need in the client market. This data has always been in Exchange, but it's been difficult to get at." Cain says the MELIA software also

can be used to identify improper use of e-mail, such as chain-letter distribution.

MELIA includes an agent that exports Exchange's log data to a Microsoft Access or SQL database. From there, the reports are used to mine the data. The program also supports Access and Seagate's Crystal Reports for generating custom report templates.

MELIA's automated agent gathers data at set intervals mandated by an administrator. The software runs on a Windows 9X or NT administrative workstation and can monitor any number of Exchange servers.

"Businesses routinely log phone calls not only for billing purposes but as a

record of who called who," says Paul Parisi, president of MicroData in Ypsilanti, Mass. Parisi says he installed Exchange for one customer who was then surprised to learn he had no way of knowing who was sending what where. "MELIA helps administrators understand how their systems are used."

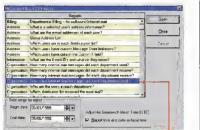
Because MELIA tracks e-mail based on address only and does not scan for content, MicroData is developing a companion tool that will provide content reporting. MicroData also may release MELIA versions for other e-mail packages.

MELIA is available now; pricing starts at \$495 per server.

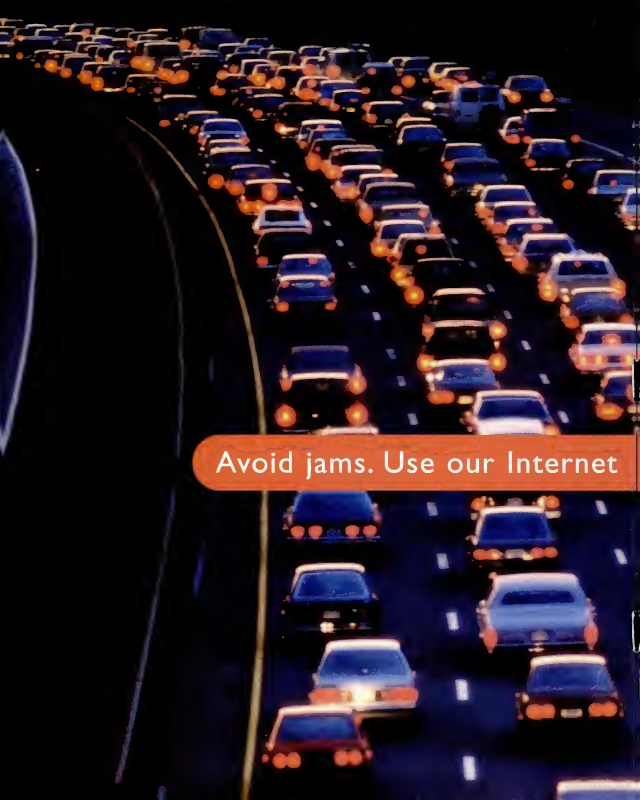
MicroData: www.microdata.com

E-mail audit

MicroData Group recently released **Microsoft Exchange Log Import Agent (MELIA)** for tracking and auditing message and traffic patterns in Microsoft Exchange. The software includes a number of reports that run against data gathered from Exchange.



After importing Exchange tracking logs into a database, users can select from a number of MELIA reports to run against the data.



Avoid jams. Use our Internet



highways.



CABLE & WIRELESS

Cable & Wireless is investing billions

in increasing the bandwidth on our

Internet backbone.

This allows us to offer you the ability to

send your multi-media and Internet traffic,

night and day, with no delays at all,

even during peak-time rush hours.

And backbone is how Cable & Wireless is

making the Internet a faster, more reliable

place to do business.

Backbone. You either have it or you don't.

www.cwusa.com
or email us at info@cwusa.com

NWInfoXpress #77 online @ www.networkworld.com/infoexpress

Health care group offers e-commerce service

BY ELLEN MESSMER

RESTON, VA. — The National Wholesale Drugists Association, the trade industry for the five dozen middle-man health care product distributors that buy from manufacturers, has launched an electronic commerce service for its members.

Called Healthcom, the Web-based service is intended to help NWDA's mostly smaller distributors gain advantages the six largest NWDA members have enjoyed for years by using electronic data interchange with manufacturers.

EDI lets larger distributors send electronic purchase orders or get new pricing information virtually instantaneously by receiving the manufacturers' electronic catalog documents in ANSI 832 EDI format over value-added networks (VANs).

The smaller wholesalers, often without the financial or technical wherewithal to use

EDI, are still dependent on paper-based communications such as fax or mail to communicate with manufacturers about new pricing information or place purchase

orders, says David Rogers, NWDA's general manager of services.

"They've even been using Western Union mailgrams, which are expensive," says

Rogers, who organized the new Healthcom e-commerce service to offer an alternative to paper-based exchange.

The manufacturers are used to sending out EDI 832 electronic catalogs for price updates to the handful of NWDA members that use EDI. Now one of the main VANs serving the health care products industry, Sterling Commerce, will also get a copy of catalog information. Sterling's role is to publish new catalog entries in Web format on NWDA's Healthcom portal maintained at Sterling's Web site, www.commerceweb.com.

forms.com.

In this scenario, every manufacturer will send every wholesaler an e-mail alerting them to new product information, Rogers says. "The distributors can then go into the password-protected site to take action on the information."

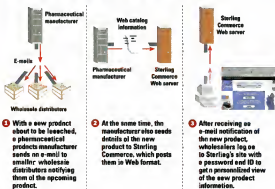
The Healthcom service, set to start next month, is expected to be offered to wholesalers on a flat subscription basis of \$39.95 per month.

The average profit margin in the wholesale industry is small — just 1.51%, which is "even worse than the grocery industry," Rogers says.

The speed the smaller wholesalers will gain through Healthcom to learn about price increases could work to boost their bottom line. If they get news about manufacturer price increases and act on them even one day in advance, they would save tens of thousands of dollars on each order, Rogers says. ■

Keeping up with the big guys

Now the Healthcom e-commerce service helps smaller pharmaceutical distributors stay current with new product information:



nQuire simplifies corporate info gathering

BY JASON MESERVE

Corporate portal announcements are all the rage this summer. Jumping on the bandwagon is a 2-year-old start-up that wants to help feed information into the burgeoning market for a single interface into all corporate data.

This week nQuire will launch its nQuire Server Suite, software designed to make accessing and analyzing structured data as simple as using a search engine.

"We want to be the Inktomi for corporate portals and structured data," says Lawrence Barbetta, nQuire's president and CEO, referring to the search engine provider for Excite® Home and Yahoo. Inktomi builds search engine and caching technology for high-end Internet sites.

The company's application server aggregates information from various sources such as databases, data warehouses and operational data, using SQL, XML and Open Database

Connectivity interfaces. Users perceive the data via a standard Web browser. Also included in nQuire's suite is a calculation engine for doing computations on information coming from different data sources.

"There are a lot of engines for unstructured data, but not many for structured information that can be scattered across the enterprise," Barbetta says.

Based in San Mateo, Calif., the firm has used its founders and engineers' decision support background in building the engine and the server. The firm includes decision support people from Cognos and Platinum, and server development engineers from Verity and IBM's Teradata division, Barbetta says.

Target customers include nontechnical business users who need access to common business information, such as sales and product information. For power users or those who need to do more

in-depth data reporting, the system can be integrated into reporting tools. This ability saves system administrators from having to deal with APIs, Barbetta says.

From a portal perspective, International Data Corp. analyst Gerry Murray says nQuire can fulfill a service for portals focused on structured data. "When deploying corporate portals, companies are going to realize the need to feed them," Murray says. Such an offering will help end users who need access to analytical data but do not want to do the "heavy lifting" associated with business intelligence tools, he says.

The product will run on Windows NT Servers, with the ability to access data on Unix, mainframe and AS/400 systems. The initial release will feature simple clustering technology, with more robust failover and load-balancing functionality due at year-end. Pricing starts at \$125,000.

nQuire: www.nquire.com

Oracle broadens line of Web-based applications

BY JOHN COX

REDWOOD SHORES, CALIF. — Oracle continues its quest to be a major software vendor for Web-based business with last week's release of Oracle Sales Analyzer.

As with its other software, Oracle has recast Sales Analyzer as a Web application, as part of a major push to create an array of end-user tools, applications, middleware and databases specifically for linking electronic business processes, such as on-line marketing, ordering, inventory control and shipping.

With Sales Analyzer 6.2.1, Oracle also released Express Web Agent 3.0, a package that lets Web users access the more extensive analytical features of Oracle Express Server Version 3.0 has added a set of new analytical features, such as the ability to specify exception criteria and export data to spread-

sheets or other PC applications.

As a basic suggests, Sales Analyzer lets users study sales and marketing data to determine, for example, what are the 10 lowest-selling products in a given territory or time period. The package includes features for running a variety of common analysis programs or reports on sales data.

The new version is written entirely in Java. Formerly, Sales Analyzer was a client-server application for Windows PCs, but all the software's code now runs on a server, where it is accessed by users with a Java-compatible Web browser.

The user interface is downloaded to the browser via a special Java file, called a JAR file. The application is set up so this downloaded portion disappears after the user is finished with it. But the settings can be changed so the file is

See Oracle, page 44



Interchangeable?

For a business world that now works 24x7, the new Compaq Armada line delivers maximum flexibility and compatibility. Any new model can work with any new Docking Solution, for mix-and-match convenience. Common MultiBay devices let users share a second battery, plus DVD, CD and other drives, across multiple Armada models. Which simplifies inventory needs and lowers your total cost of ownership. In short, for just about any mobile enterprise, the versatile, flexible new Compaq Armada Series is a nonstop solution that really clicks. Details? Visit www.compaq.com/armada, or call 1-800-AT-COMPAQ.



COMPAQ Better answers.™

Armada M300 Series @ \$1,999*

* 3.1 lbs, 0.9" thin • Mobile Intel® Celeron™ processor 333 MHz • 11.3" color TFT display • 4 GB** Hard Drive • 64 MB RAM • 56K V.90 integrated modem • Optional Mobile Expansion Unit



Sybase,
continued from page 39

database events and information across applications. The product supports messaging products from Tibco and IBM, and is available now.

• A beta version of PowerDesigner

7.0. The new version of this database modeling tool supports object-oriented analysis and design, which enables database administrators to create object-relational models. PowerDesigner 7.0 will be available for download from Sybase's Web site this week. It is expected to ship in the

fourth quarter of 1999, and pricing will be announced at that time.

• Three new Industry Warehouse Studios, which are packages of five data analysis customer relationship management applications. The new offerings are the Sybase Capital Markets Industry Warehouse Studio, the Sybase Life

Insurance Industry Warehouse Studio and the Sybase Credit Card Industry Warehouse Studio. The products are scheduled to ship on Sept. 1 for Unix and NT. They start at \$100,000.

• A new middleware product code-named Open Door, which is slated to be in beta testing by December and ship in early 2000.

Finally, Sybase also outlined a plan to make it easy for users to build and deploy electronic commerce applications for mobile devices. Called e-Anywhere, the plan will center on the synchronization and distribution of data, the local data store of mobile devices and the customization of applications. The first product to be part of this strategy will be the new release of the company's SQL Anywhere Studio, due in the fourth quarter.

Merrill Lynch, in a November 1998 report, dubbed the sector Sybase is going after the Enterprise Information Portal (EIP) market and said it would reach \$14.8 billion by 2002, up from \$4.4 billion in 1998.

Merrill Lynch defines EIPs as "applications that enable companies to unlock internally and externally stored information, and provide users with a single gateway to personalized information needed to make informed business decisions."

The Delphi Group agrees that the EIP market is poised for big growth. "Sybase is making a very important and strategic bet that the portal market will be an area for differentiation," says Kouloukopoulos.

Pérez is a correspondent with the IDG News Service.

Oracle,
continued from page 42

stored permanently on the user's PC. The browser-based code is updated automatically whenever new software is added on the server.

Besides recasting individual applications for the Web, Oracle is doing the same thing for its server-based products. For example, the Oracle8i database and the Oracle Applications Server have been released with extensive support for Java and other Web and Internet standards, for example.

Next month, Oracle will activate an electronic market, called Oracle Exchange, that will let any company buy and sell business goods and services via the Web.

The market will rely on Oracle's Web-based software products, which means that companies can participate without having to buy or install Oracle software. All features of Oracle Exchange will be accessed via a Web browser.

Oracle: www.oracle.com; www.oracleexchange.com

NECA / IBEW CONTRACTORS • WE DO MORE



We Make Networks Work.

To build a smooth running network, you need more than computers and software. You need an electrical contractor that knows megabits from megahertz—a NECA/IBEW contractor.

NECA/IBEW contractors can install, test and certify cabling for complicated network applications such as Fast Ethernet, Token Ring and high-speed ATM links. They are also experts in fiber optic cabling, the medium of choice for LANs, network backbones and even desktop applications. Their skilled workers know all the codes and standards and understand their applications.

Maximize your network's performance and protect your investment in hardware and software with a solid foundation built by a NECA/IBEW contractor.

To hire an electrical contractor who employs IBEW workers, contact your local NECA chapter or IBEW local union. To find a NECA contractor, call The NECA Connection at 800-888-6322 or visit our website.

<http://www.necanet.org>

National Electrical Contractors Association
International Brotherhood of Electrical Workers



There's one compelling reason to
let us handle your e-business.



e-bandwidth.

Most communications companies selling e-commerce solutions have one problem, they've been around a while. So, their networks may lack the bandwidth to maximize your IT investments. We've got one of the world's fastest Internet Protocol (IP) networks, one with bandwidth to spare. Put your e-business into overdrive. Visit our Web site at qwest.com for the bandwidth to change everything.

Free Product info enter NWInfoXpress #73 online @ www.networkworld.com/infoqpress

ride the light 
Qwest



'Not Insider . Scott Bradner

WHEN PARALLEL SERVICE IS NOT THERE

If it's true that one is known by one's enemies, then you might want to take a close look at who is fighting to force AT&T to open its new

cable-TV infrastructures to competing ISPs. For me, it's almost an automatic reaction — if the local telephone companies are in favor of something,

then I should oppose it.

As regular readers of this column know, I've been a longtime, happy user of MediaOne's cable modem-based

Internet service. I've been watching — and cheering on — the growing availability of cable modem Internet services around the country. I think that others should have the same type of high-speed and reliable Internet connectivity as I've been fortunate to have. *The Wall Street Journal* reports that Kinetic Strategies of Phoenix estimates there are now just about a million of us cable modem Internet service subscribers and that the service is available to about one-third of all homes that are passed by the cable infrastructure.

But that means that two-thirds of the cable infrastructure does not or cannot support cable modems. Thus, I was enthused when AT&T spent almost \$150 billion to purchase cable TV companies with the specific aim of offering Internet and voice services and when the carrier committed to spend the very large sums needed to bring much of the current infrastructure up to a level where it can support these services.

But now we are seeing a number of organizations, fighting to force AT&T to allow other ISPs to use the infrastructure that AT&T wants to upgrade. The argument is being made that AT&T will have a monopoly on Internet service if this is not done. But this argument misses two things: 1) There is a parallel infrastructure that can be used to provide high-speed access, and 2) the effect of the reduced incentive for AT&T to invest all that money if it thinks it cannot get a good return.

As the head of the Federal Communications Commission noted, digital subscriber line (DSL) services, which in some ways are even better than cable modems, seem to be mostly offered by the phone companies where cable modem service exists. Even phone companies can sometimes recognize competition when they see it.

It seems to me that the direct result of forcing AT&T to open its cable plant would be to slow to a crawl the upgrading of the currently unsuitable two-thirds of the infrastructure and reduce the pressure on the telephone companies to deploy DSL. Tell me again how reducing choice is good for the consumer.

Note also who it is that is on the consumer's side who is America Online, whose ISP business might be impacted, plus some competing ISPs and local phone companies. The latter are quite well known for their pro-consumer track record.

Disclaimer: Harvard, in spite of its reputation, tries to be pro-consumer, but the above reaction is mine.

Bradner is a consultant with Harvard University's Information Systems. He can be reached at sob@harvard.edu.

As Simple As Plugging It In!

Easy and Affordable Networking Solutions for Your SOHO Needs



Aopen Networking Products are Now Shipping!!

Aopen's complete line of hubs, switches and routers offer reliable and simple solutions for creating networking and internet access for small-sized business. Discover how these products can boost your productivity and cooperativeness by providing you with everything you need to build a secure and high-performance network.



- Aopen 4000S 8-port SOHO Dual-Speed Switch
- Provides 8 port RJ-45 connections for 10/100Mbps
- Supports 10/100Mbps Auto-Negotiation with Half/Full Duplex
- Building model for simple set-up plug & play operation
- One convenient up-link port for network expansion



- Aopen 4000B 8-port SOHO Dual-Speed Switch
- Same features as Aopen 4000S, provides 8 port RJ-45 connections
- Provides 8 port RJ-45 connections for 10/100Mbps
- Automatic switching between 10/100Mbps
- Bridges up-link port to other hub, available up to 5 sets
- Dual-Speed ports for easy and fast external integration



- Aopen 4164d 16-port SOHO Dual-Speed Hub
- Same features as Aopen 4000S, provides 8 port RJ-45 connections



- Aopen 10T1 10/100Mbps Switching Hub
- Integrated 10, 10T, Hub and Router functions
- 10T1 10/100Mbps protocol for WAN connection
- Bandwidth on demand (BOD) for emergency voice call
- 20/40/60 modular jack, 10/10T modular jack, 10/10T BOD, 10T1 port



- Aopen 20T1 20/40/60Mbps Switching Hub
- Allow Multiple users to share one IP address
- Connects either one or two external modems
- Provides a web-based user interface for one-stop maintenance
- Features one 10/100Mbps auto-sensing Ethernet port
- Supports file for Internet Access Control



- Aopen 20T1 20/40/60Mbps Switching Router
- Includes all features as Aopen 20T1 plus:
- 20/40/60Mbps auto-sensing Ethernet port
- Supports 10/100Mbps auto-sensing Ethernet port
- Supports both fixed and dynamic allocation of public IP address
- Supports remote dial-in function



For a limited time only, receive \$100 rebate with above Aopen hub, switch or router purchase. Buy now and enjoy our complete reseller service solutions, all aimed to improve your bottom line. For detail information, please call 1-888-432-6796, ask for D009 981.

Aopen

1-888-432-AOPEN

(1-888-432-6796)

www.AopenUSA.com

Copyright 1999 Aopen America, Inc. All trademarks are registered trademarks of their respective owners. All other names, products or company names are trademarks or registered trademarks of their respective companies.

Free Product info enter NWInfoExpress #70 online @ www.networkworld.com/infoexpress



Ask Dr. Intranet

By Steve Bliss



We're expanding our intranet to support a handful of external partners. Can you recommend a good virtual private network (VPN) package for Linux?

via the Internet
Check out Linux FreeSWAN at www.xs4all.nl/~freeSWAN. It provides IP Security (IPSec) and Internet Key Exchange (IKE) tools for connecting pairs of sites using encrypted software tunnels. FreeSWAN is distributed as source code for Linux systems running Version 2.0.3X kernels. Red Hat Linux is the recommended distribution. After backing up your existing kernel and configuration files, build FreeSWAN and follow the instructions in the INSTALL file. The documentation walks you through configuring your VPN tunnels and establishing encryption keys. VPN configuration information is kept in the file `/etc/ipsec.conf` and encryption keys are kept in the file `/etc/ipsec.secrets`. Pay attention to setting the right permissions on these two files to keep their contents secure.

Once FreeSWAN is configured on both tunnel gateways, the VPN connection can be established using the keys in the "ipsec secrets" file with the command "ipsec manual -- start name" or IKE to negotiate the session keys automatically with the command "ipsec auto -- start name".

FreeSWAN uses Triple Data Encryption Standard encryption and cannot be exported out of the U.S., but it will interoperate with Cisco, Network Associates, OpenBSD and Raptor IPSec implementations using Triple-DES.

Bliss is a network architect at Sprint Paramet in Houston. You can reach him at drintranet@paranet.net.

Technology Update

An Inside Look at the Technologies and Standards Shaping Your Network

New spec will help secure LANs

By Hamid Karimi and Vipin Jain

For network managers, authenticating remote access users is a simple process: The user dials in to the enterprise, the call is diverted to a RADIUS server, the server fires off a password challenge and, if it receives the correct response, it lets the user into the LAN.

But for users already inside the firewall — those working from their desktop PCs — few authentication methods exist.

However, a proposal is before the IEEE that would extend the benefits of remote authentication to internal LAN users. And because it makes use of existing standard technologies, the new Extensible Authentication Protocol Over Ethernet (EAPoE) specification promises to do the job without adding new client software to typical desktop PCs.

The EAP part comes from the ubiquitous Point-to-Point Protocol (PPP), which activates the modems of most of today's remote users. An IETF standard, PPP is typically called on to establish peer-to-peer links.

A PPP option also allows for user authentication via either Password Authentication Protocol (PAP) or Challenge Handshake Authentication Protocol (CHAP), either of which consults with a company's central Remote Authentication Dial-In User Service server to validate employee passwords.

One of the key features of PPP is its extensibility, and one of PPP's little-known extensions is Extensible Authentication Protocol (EAP). But where PPP offers only simple peer-peer authentication using PAP or CHAP, EAP makes it possible to use a wider range of authentication protocols.

Roots of EAPoE

To bring this capability to today's LAN users, the new EAPoE specification borrows, or "de-links," EAP from its PPP transport mechanism, then assigns it to a new transport mechanism — Ethernet.

EAPoE swings into action as soon as a new connection is detected by a LAN switch's Ethernet port. The switch challenges the new arrival by sending an EAPoE packet with a Request Identity message. The new device, such as a user PC, embeds its user ID into the EAPoE data field and sends the packet

back to the switch.

The switch then transmits this information within an EAP Access Request message to the RADIUS server.

For communicating with RADIUS servers, the EAP packet does not have to be encapsulated in Ethernet because, as with PPP, EAP is able to use the RADIUS protocol as its transport mechanism.

The RADIUS server responds by sending an Access Challenge message back to the switch, effectively asking to see the password for that user ID. The switch encapsulates this within EAPoE and sends it to the requesting PC.

The PC then enters its password and sends it via EAPoE back to the switch. Typically, passwords are sent in encrypted format — compatibility with encryption software is another feature of EAP and, therefore, of EAPoE. The switch turns this into an Access Response EAP packet, encapsulating it in the RADIUS protocol for transmission to the RADIUS server.

Once the RADIUS server finds the user ID/password match in its database, it sends a final "success" message to the switch, which now activates the user port connection.

In a topology without I/O bottlenecks — and with reasonably fast database-search facilities — this entire process should take less than one second.

As simple as the process seems, EAPoE offers a sophisticated mechanism for securing LANs with different security topologies and with various security methods.

Also, thanks largely to a variable-length data field in EAP that can accommodate a range of security technologies, the standard is open for use with virtually any current or future security method, including MD5 challenge, token cards or even biometrics.

An IEEE working group

will soon be assigned to EAPoE. Vendors backing the specification include 3Com, Cabletron, Extreme Networks, FORE Systems, Hewlett-Packard, Intel and Merit Network.

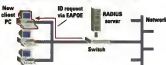
Karimi is a technology marketing manager at 3Com, and Jain is a consulting architect for 3Com. They can be reached at Hamid_Karimi@3Com.com and vjain@cmetric.com.

HOW IT WORKS

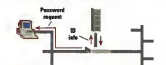
EAP Over Ethernet

This example shows how an internal LAN user is authenticated using the EAPoE specification.

- 1 A new connection is detected by a LAN switch and port causes the LAN switch to request user ID via Extensible Authentication Protocol Over Ethernet (EAPoE).



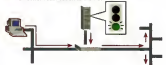
- 2 The switch then forwards the user ID to a RADIUS server via EAP encapsulated in RADIUS protocol. The RADIUS server responds with an "Access Challenge" password request, which is forwarded via EAPoE.



- 3 The connecting PC now sends an encrypted password to the EAPoE packet. The switch relays the password to the RADIUS server via RADIUS protocol.



- 4 If the RADIUS server signals "success," the switch opens a network connection to the PC.



Gearhead — inside the network machine • Mark Gibbs

A GUIDE TO THE COMMON GATEWAY INTERFACE

Have you ever been to a Web site and seen one of those stupid counters that proclaim how many visitors have been subjected to the site's inanities?

Gearhead, as you might have guessed by now, deplores the use of Web counters. They frequently give the wrong value (often intentionally), and if the value is correct and low (as in "This page has been visited 12 times since January 1994"), it pretty much indicates a certain lack of success.

Be that as it may, some Web site owners, for reasons known only to them, like Web page counters. And despite the silliness of Web counters, you may have wondered how they work. The answer is through a Web server application that pretty much any type of Web server can run to create dynamic Web content, such as a page counter.

These server applications can be invoked in one of two ways. First, by the Web server receiving a URL that requests the execution of a program; or second, by a program specified to intercept all or a selected range of incoming URLs. The latter case involves configuration that is specific for each type of



Web server, but both methods use the same mechanism to send and receive data from the server application.

The most common communications mechanism used for this activity is the Common Gateway Interface (CGI). As APIs go, CGI is pretty simple. It relies on two standard features of applications called standard input and standard output, otherwise referred to as `stdin` and `stdout`, respectively.

A little sidetrack is required here: Standard input for programs is the keyboard, and standard output is to the screen. When one application wants to communicate with another, sending data to the other program's standard input — that is, pretending to be the keyboard, is a simple

method. And replying via the standard output is equally easy — the program just prints.

So with CGI, when the Web server receives a URL that specifies that a program is to be run, and assuming that running programs is allowed and that the program exists on the disk where the URL indicates, the program is executed.

Typically, a Web counter program uses a file to keep a tally of requests and every time it is executed, it updates the value in its file and then outputs that value. A URL to run a Web counter on a Web page might look like:

```
<a href="http://popularterver.com/cgi-bin/webcount.exe">My stats.</a>
And the Web server would receive:
/cgi-bin/webcount.exe
```

Before you ask, no, the server name is not passed to the Web server — there's no point, as the Web server should know its own name from its configuration data. In the example, the program receives no additional data and simply writes a response (usually formatted as HTML) to `stdout`. In this case, the response would be a complete Web page. A more complex exam-

ple would place the Web access counter inside a Web page. To do this, we have to get tricky.

Although we can easily generate a text version of the counter value, it is not that straightforward to include text in a Web page (you have to use something called "server-side includes" which Gearhead will discuss in a future column).

On the other hand, including images is easy and that's what most Web counters do.

The process is simple: The counter program outputs the current count value as a graphic image built by combining a number of image files, one for each digit. The counter image is referenced in a Web page in much the same way as any other image. For example:

```

There are a number of Web page hit counters available for free on the 'Net: Gearhead recommends checking out Matt's Script Archive Counter at www.worldwidemart.com/scripts/counter.shtml for a sound and workable example. That is, if you must use one.
```

Send your e-mail to gb@gibbs.com.

NetworkWorld Fusion Spotlight

News, tips and tools from our Web site

Preparing for Win 2000

In this week's Help Desk, a reader asks what he can do to get ready for Windows 2000. His management team wants to roll out the software as soon as possible, and he has already purchased Beta 3 in the Corporate Version Program. But as you'll read, Ron Nutter has a host of suggestions, including which books to read and what sites to visit. He also provides a handy link to a list

of hardware that Windows 2000 supports.

DocFinder: 4429

Interview follow-ups

What you do after an interview can be almost as important as what you did during the interview. This week the Career Doctor looks at how to conduct yourself after visiting a company — from exiting the building to writing thank-you notes. Even if you're not going to accept the job, you still have to make

a good impression in case other positions become available, he says. And a follow-up call can make or break a company's decision to hire you. Shaun Kelly will be online this week with tips to help you.

DocFinder: 4430

Surfing the friendly site

Anyone who has traveled through Boston's Logan Airport knows the troubles travelers are encountering. Construction inside the airport and on nearby roads has things in a tangle. But Massport, the agency that runs Logan, has turned to the Web for help.

Massport, with the aid of NetNumina, a Web site developer, has created an information hub for travelers. From real-time flight information to parking updates to e-mail about flight arrivals and departures, Massport is looking to provide an interactive

one-stop shop for passengers.

DocFinder: 4431

E-commerce anyone?

You have millions — if not billions — of dollars riding on your networks, and you're trying to make a go of patchwork electronic commerce nets. You need to reconcile the latest technologies with the realities of your legacy nets. Network World Fusion is rolling out a new newsletter in September to help you with your e-commerce challenges. In a free twice-weekly e-mail dispatch, Network World Fusion Managing Editor Sandra Gittlen will offer you tips, topics and tales from the e-commerce front lines. She'll tell you how the latest products fared in user nets and what technologies will help get the job done. She'll also give you tips on how to structure your e-commerce effort.

DocFinder: 3850

Doing out the dough

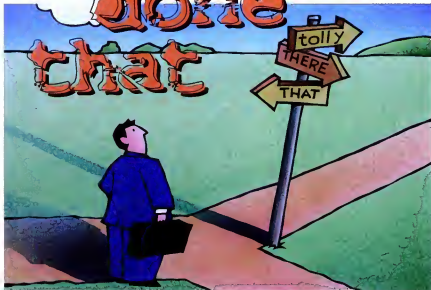
MCI WorldCom, AT&T and Lucent all have active venture capital arms (see story, page 31). In fact, Lucent has been handing out money and buying up companies like they're going out of style. But if you think carriers are the only ones spending big bucks on new technologies, think again. Our venture capital database shows where venture capital dollars are flowing. Search it or download an Excel spreadsheet.

DocFinder: 4432

Help Desk

Ron Nutter is standing by to answer your networking questions. Read his column every week on Fusion. DocFinder: 2630

Been there, done that



experience

There's no substitute for it, not in life

and not in the test lab. And if you're going to trust an independent test lab with your latest product—or your corporate network—you want to work with someone who's seen it all and won't overlook either the obvious or the obscure.

Over the past decade as the industry's premier independent test lab, we've spent thousands of hours creating test methodologies and running engineering-caliber evaluations. No other test lab can match this level of experience with every significant networking technology to be introduced in the past decade.

We also want to make sure that you benefit from this vast experience when it's time to choose a testing partner—one of the most important business decisions you'll ever make. That's why we've prepared a white paper to help guide you through the process, complete with a lab evaluation checklist. You'll find it on our Web site at www.tolly.com/lab-eval



T H E
TOLLY
GROUP

Editorial Insights

Peering into the future via network crystal ball

Network managers often double as seers. You have to stare deep into your network as if it were a crystal ball and divine what it will look like down the road. What technologies will be mature? What

companies will still be around to offer you support? How much of your network will you still have direct control over?

Before you go hat in hand to the people who control your company's purse strings, you have to have a clear vision of what the future holds for your network.

To help you, *Network World* is hosting a power

panel session at NetWorld+Interop '99 Atlanta. Your favorite columnists, including Mark Gibbs, Dave Kearns, Daniel Berez, Joel Snyder, Steve Blass and David Robide, will put on their prognosticator caps and give you a glimpse of what future issues networks might hold. Here's a sampling of their predictions.

Gibbs says that we're in the calm before the storm. The government is gearing up to regulate the pants off us on the Internet. He says the consequence will be major headaches for network managers who have to develop workarounds. You'll have to become experts in privacy statements, content publishing and the distribution of privileged information.

Meanwhile, Kearns says don't get too caught up in deciding which operating system to choose. The real challenge will be picking a directory service. He predicts desktop and server operating systems will be managed by directories, as will network hardware. New protocols will let products be installed, maintained and updated through directories.

And lest you think your traffic will travel over a pure IP network, think again. Robide says don't be fooled — ATM will be at the core of carrier offerings, even if they call them "IP services."

Which of these predictions will affect you? Which don't hold water? Send your thoughts as well as your network readings to me. The best one will be debated at our "Crystal Ball: Peering into your networked future" session in Atlanta. Be sure to join us from 11 a.m. to 12:30 p.m., Wednesday, Sept. 15, in Room 202E of the Georgia World Congress Center.

— Sandra Gittlen
sgittlen@nww.com
Managing Editor
Network World Fusion

Message Queue

UNDO TO OTHERS

Your review of NT domain migration tools ("Heavy-lifting help for your Active Directory move," Aug. 16, page 57) overlooks key migration "undo" functionality provided by FastLane DM/Manager, while singling out this functionality as a primary basis for favoring another product.

DM/Manager has always provided the most granular undo capabilities, allowing administrators to undo whole migrations, any subcomponents of a migration, a portion of a project or the entire project. Such functionality is especially critical for large network environments of thousands of users, where migrations are often performed in stages. The ability to undo ensures minimal network disruptions while migration project plans are optimized and changed.

Kelth Millar
Senior product manager
FastLane Technologies
Halifax, Nova Scotia

SUCH A BARGAIN

Regarding your news brief "Hell's bells" (Aug. 9, page 6):

I am envious of those lucky cell phone users in Los Angeles who pay only \$120.69 for 600 to 1,500 minutes of usage. Here in Nome, the rate for 600 minutes is approximately \$355, and 1,500 minutes would cost over \$750. One other note: Cell phone service was installed here just this month.

Jewell Brown
Nome, Alaska

TESTING, TESTING

Regarding Kevin Tolly's column "Switch testing roll call: On board or AWOL?" (July 26, page 22):

In a perfect world, all users would have time to test drive the network products we intend to use. In the real world, however, we don't have the time or budget to test network products effectively. That's where testing by independent companies becomes important. When we, as end users, purchase so many millions of dollars worth of equip-

ment every year, we rely on independent testing to provide us with insight into performance and suitability for our applications.

One would hope that a switch manufacturer would be excited to have its products tested against the competition. To me, a vendor that balks at independent testing is suspect and not suitable for my network needs.

I'm looking forward to the results of *Network World's* testing.

Raymond Santana
Network analyst

University of California-Davis Medical Center
Sacramento, Calif.

SMILEY WHEN YOU SAY THAT

Regarding Mark Gibbs' column "Don't say it with smileys" (Aug. 9, page 62):

Emoticons have an important purpose: to anticipate the potential (and unexpected) misinterpretations inherent in written communications. Much of what we communicate in face-to-face conversation is in tonality, rhythm, pauses and gestures.

Most e-mail authors have a specific set of nonverbal habits that they assume while writing and are surprised when the occasional recipient applies a different emphasis or tonality and arrives at a completely different meaning. Where interpretation is important to the transaction, the occasional smiley-face can prevent a flame war.

There are two messages here: Smiley-face emoticons have a useful purpose, and like most things in this world, they can be abused.

Please do use smileys, but sparingly and wisely. It's in the excesses and abuses that Gibbs' concern about possible deceit may be appropriate.

Carol Anne Ogden
Deep Woods Technology
Santa Clara, Calif.

Every one of Mark Gibbs' complaints about folks who use emoticons applies equally to columnists who resort to pseudo-markup tags like <confession> and <colligation> to make their point. Learn to say what you mean, Mark, and trust your readers to get it.

John Goulden
Bethany, Okla.

Send letters to network@nw.com or John Gaudin, editorial director, Network World, 161 Worcester Road, Framingham, MA 01701. Please include phone number and address for verification.

More
Online

• Let us about smileys and other topics.

800-442-1111

www.nw.com

Network World Fusion



Mike Kase '99

'LITE' REGULATION: TASTES TERRIBLE, AWFULLY FILLING

The push by America Online and GTE to force AT&T to open its cable network to competing ISPs has involved some remarkable sleights of hand. The sight of GTE, with upwards of 95% market share, and AOL, with a market share almost 10 times larger than its nearest competitor, portraying themselves as needing government protection against AT&T affiliate ISP Excite@Home, a competitor with 2% market share, is a wonder to behold.

But as a former regulator, the rhetoric I find most amazing is the claim that the government-regulated forced resale that AOL and GTE seek requires only "lite" regulation. I am not always an opponent of regulation. But I am always opposed to misleading policy makers about the implications of what one seeks.

In my four years at the Federal Communications Commission, the toughest problems we encountered were those presented by requiring one competitor to make its facility available to another. That's not to say such regulation is never justified — but it is never lite. Because such action involves pricing, technical standards, interconnection agreements, quality-of-

service standards and thousands of details, government intervention is inherently a heavy task. Anyone who saw what the FCC went through in implementing the 1996 telecom act would appreciate the difficulty. Our efforts to figure out how such forced resale would work in the telephone arena required us to spend an extra \$500,000 just for overtime utility bills. If we had had to pay overtime wages, the federal budget might still not be balanced.

AOL says all it wants is the same deal Excite@Home has. Putting aside that AOL could have come to the cable industry with that deal or participated in Excite@Home but chose not to do so, the Excite@Home agreement is many pages long and took a year to negotiate. Neither AOL nor any other forced resale advocate has been willing to agree to all those terms.

GTE readily concedes the complexity of forced resale — when applied to its own network. Because the cable plant involves a shared network, the forced resale proposals inherently involve line sharing, something that has never been required of the phone companies. GTE says line sharing is easy on the cable fac-

ility but attacks proposals that would require GTE to share its lines as "harming competition and consumers... [causing] unnecessary costs... and raising considerable operational issues." As Ameritech said in its FCC filing on the line-sharing proposal: "A host of practical, technical and operational issues... preclude any near-term sharing obligation."

There are more important reasons to oppose the forced resale proposals — specifically, because any such policies would delay deployment, reduce the number of competitive facilities and raise costs for consumers. Complicated regulation is not, in and of itself, a reason to oppose regulation. But the fact that AOL, GTE and their lobbyists feel a need to so misrepresent the nature of what they seek should cause policy makers at all levels of government to view their claims with a skeptical eye.

Levin was chief of staff for former FCC Chairman Reed Hundt and is currently a principal at the Blue Hill Group, a telecom consultancy in Washington, D.C. He can be reached at blevin@bluehillgroup.com.

R&D BREAKDOWN IS DRIVING FORCE BEHIND ACQUISITION FEVER

Two weeks ago, Lucent bought its sixth Massachusetts-based company so far this year: Excel Switching. On the same day, Cisco paid \$143 million for MaxComm Technologies and forked over \$49 million for a 4% stake in Akamai Technologies. Just a few months ago, Siemens shelled out \$1 billion for three tiny startups. And Nortel Networks is buying young companies left and right, as well as investing serious money in venture capital firms.

What's going on here? The CEOs of these companies have come to an inescapable conclusion: For far too long, they have relied on internal research and development to get new products right — and far too often, R&D has failed. This has caused these behemoths to go through four stages: Denial, Anger, Grudging Acceptance and Giddy Acquisition.

When faced with a new technology, the big companies first stonewall: "This technology doesn't work, won't scale and causes cancer in laboratory rats." While they're wallowing in Denial, they're also urging their tech teams to work overtime to catch up, before customers can beta-test a competitor's new hardware.

The second stage, Anger, kicks in when the new players start to gain serious market share. For example, Excel switches help the new kids on the block get going with voice mail, fax forwarding and voice over the Internet.

The new kids believe in and build to open standards. Meanwhile, the old guard, such as the Euro-

pean equipment guys and Lucent and Nortel, do as little as possible, as loudly as possible (Grudging Acceptance). The new kids also are getting lots of money — from the public markets and the smart venture capitalists. In fact, competitive local exchange carriers add more access lines now than the older regional Bell operating companies.

At this point, the brain trust at Lucent switches to Giddy Acquisition. Its logic goes something like this: "Look, the market is moving away from us and is moving at an even greater speed. Do we want to wait until the market is so big that we can't afford to play, or do we want to move now?" Lucent paid \$19.6 billion for Ascend; it could have had Ascend's real asset, Cascade Communications, for \$4 billion if it had moved just two years earlier.

The thinking now is that it's better to overpay early than overpay late. So Lucent goes shopping and buys companies such as Xedia, Kennan Systems and Nexabit for very high numbers and then tries to integrate all of them into a coherent product offering.

Cisco is the master of this maneuver: Cisco's stock is so hot that it often will buy multiple companies in the same area, just to ensure it has covered that technological base. Cisco wants the enterprise market and the carrier market; Lucent is more focused on the carrier market but will buy a systems integrator such as I NET just to make sure that it has the capability to serve the enterprise market.

This presents an interesting set of new problems. The network integrator's job is to pick the best technology available to solve your problem. But when the network integrator is owned by an

equipment provider, there is a strong temptation to favor the sister company.

In any case, the Europeans will be the last to arrive at the party, if only because they are slow on the uptake. Alcatel will buy Packet Engines; Siemens will buy Redstone; Marconi will buy FORE Systems.

However, the Europeans have three problems. One, their stock is not in the stratosphere, so they suffer real dilution when they overpay with equity. Two, they usually wind up with second-tier companies at first-tier prices. And three, they screw up the companies from the minute they buy them, often with a heavy-handed approach to management — at which point management of the acquired company leaves, raises venture money and starts the process all over again.

(By way of disclosure, let me say that every company mentioned in this column is a client of The Yankee Group, and I am a principal with Battery Ventures, in which Ameritech, Bell Atlantic, Williams, Novell and other telecom companies are investors.)

In the end, who benefits? Actually, everyone. The big companies get better technology faster, even if they have trouble integrating it. The enterprise companies and carriers get advanced technology and the warm, fuzzy feeling that these new companies have the muscle to build and support the products. And the economy benefits from all this hybrid vigor.

Anderson is founder and president of The Yankee Group, a consultancy in Boston. He can be reached at banderson@yankeegroup.com.



**From point A to point B with twice the capacity
and four times the confidence.**

TRACER®
Mastmount digital
microwave radio

ADTRAN TRACER. Exactly what you'd expect from this engineering company.

Dual T1 wireless connectivity from a recognized leader
in network access and deployment.

TRACER® digital microwave radio represents the industry's best
value in wireless transmission technology. Dual T1 capacity *doubles*
the amount of voice, data or video transported over a single link,
while military-proven spread spectrum
technology delivers outstanding reliability
and security. Built by ADTRAN, a company
deeply entrenched in telephony and data

**TRACER is the first digital microwave
radio to provide dual T1 at a price
comparable to single T1 systems.**

communications industries, TRACER is easily deployed and fits
seamlessly into existing networks. Our knowledgeable design
support specialists can show you how.

For more information on how TRACER can make a difference in your
network, please call 888 3ADTRAN (888 323-8726) today.
Or, visit www.adtran.com/tracer

TRACER® Features

Dual T1 microwave radio

Transports high-speed
voice, data and video

Point-to-point up to
30 miles

2.4 GHz license-free
ISM band

Direct Sequence Spread
Spectrum technology

NEBS Level 3 compliant

Mastmount or rackmount

Remote configuration,
monitoring and testing

Industry-leading five-
year warranty



Experts choose ADTRAN™

ADTRAN

T3 T1 E1 FRAME RELAY xDSL HDSL HDSL2 ISDN DDS WIRELESS

RELIABILITY CHECKLIST

BY PAUL DESMOND

When the advertising firm Bates USA was relocating its Manhattan offices in March, the company used the opportunity to upgrade its network, installing a series of 3Com CoreBuilder 9000 switches throughout six floors of its new building.

The three-and-a-half-day move went well, save for a glitch with one 20-port 10/100 CoreBuilder 9000 module, says Joseph Murello, Bates' senior vice president and director of IT. To ensure it wasn't the switch fabric at fault, Murello and his senior technical consultant, Peter Dentico, decided to pull one of the two switch processor modules out of the CoreBuilder 9000 chassis. That should have prompted the 9000 to kick over to the second switching fabric without losing a beat, which is exactly what happened.

"It was an immediate switch. We didn't even

A guide to the architectural, configuration and environmental factors that promote reliability and availability in a core LAN switch.

ability in the switches that sit at the center of your network. These include the cooling system or even the number of paths across a switch backplane between I/O modules and the switching fabric.

"Reliability means things don't fail," notes Bob Bellman, principal with BrookTrail Research in Natick, Mass. "Availability means, even if something fails, you can still get to the network."

There is a veritable checklist of items to consider when switch failure isn't an option. The following guide highlights some of the most important fault tolerance factors and gives you tips for ensuring the

to run the switch. But that's not all.

"Each power supply should have its own cord and separate sources," Bellman says. "You've got to find out how the building is wired and make sure everything doesn't go through the same transformer."

It's also a good idea to look for a wide tolerance in terms of the power feed the switch will accept, says George Sullivan, senior network architect with the Bethpage, N.Y., facility of aerospace manufacturer Northrop Grumman. It's not uncommon for an electrical glitch to activate a backup power supply, such as an emergency generator, whose power frequency is not as tightly controlled as that of the commercial power grid.

"I've had equipment blow up on me because it didn't like getting 59 hertz instead of 60 hertz," Sullivan says. To be on the safe side, he advises looking for a switch that will accept power ranging from 95 to 135 volts and from 55 to 65 hertz.

Michael Speyer, associate director with The Yankee Group consultancy in Boston, raises other less technical power considerations. "Look for something that doesn't have an on/off switch because somebody can turn switches off. And you don't want a power cord that can be pulled out easily," he says. "It's the simple things that make for reliability."

Dissecting fault tolerance

Here's a look at some of the features that promote reliability and availability in a switch.

Switch architecture:

- Redundant switch processors, preferably with active backup
- Redundant, n+1 power supplies
- Hot-swappable I/O modules
- Distributed architecture — I/O modules perform some switching
- Dual management modules
- Temperature monitoring capability
- Dual clock sources
- Bellcore Network Equipment Building Standards (NEBS) compliant

Configuration and management features:

- Support for link aggregation (IEEE 802.3ad)
- Support for multipoint link aggregation
- Support for Hot Standby Routing Protocol (HSRP) or Virtual Router Redundancy Protocol (VRRP)
- Trend analysis tools



notice it. We thought we did something wrong," Murello says.

"The only reason I knew I had pulled the processor was because I was holding it in my hand," Dentico adds.

That's the way redundancy is supposed to work in a core LAN switch, but redundant processors and hot-swappable cards are just a few of the many attributes that contribute to high reliability or avail-

physical environment in which you place the switches likewise promotes availability.

Power play

Mundane as it may seem, power is perhaps the most basic consideration when it comes to reliability. Any core LAN switch has to have multiple power supplies and n+1 redundancy, meaning there's at least one more power supply available than it takes

Switching components

As Bates USA now knows well, having redundant processors or switching fabrics is another key issue. Even better is having a backup processor that is always active, as opposed to one that has to learn the network topology when it gets called into service. Kevin Brown, senior marketing director for Cabletron, notes that the cutover should happen with no manual intervention, which he claims isn't always the case.

And don't take the vendor's word for it that such features work as advertised, Sullivan says. "If failover capabilities are there, you've got to test them on a routine basis," he says. "Once it becomes part of the routine, it's not going to seem like an emergency when you really need it."

A distributed architecture, where I/O modules take on some of the switch chores, can also promote availability. In that case, if the central switch fabric fails (or in the highly unlikely event that both fabrics fail), at least users attached to the same switching module can communicate with one another.

Another consideration is having dual clocking sources. "Biss get put on the line at very precise levels. Timing has to be maintained or everything gets confused," BrookTrail's Bellman says. "If the clock fails, you can't put the bits on the wire or take bits off the wire accurately."

Most of these features are standard fare for carrier-class switches and, indeed, many core-class LAN switches comply with the Bellcore Network Equipment Building Standards (NEBS) that cover carrier switching gear. "You could look at NEBS compliance as the Good Housekeeping Seal of Approval for a switch," says David Passmore, founder and research director of NetReference, a Sterling, Va., consultancy.

If you want to get to the real nitty-gritty, take a look at how many traces, or paths, exist across the switch backplane between the I/O modules and the switching fabric. In the case of the 3Com CoreBuilder 9000, you'll find 10 distinct paths, five between each I/O module and each of two switching engines. Only two of these paths, each of which can handle 1G bit/sec of traffic, are currently used, says Jim McCarron, 3Com product technology manager.

Bates USA's Dentico says that was one part of the 9000's architecture that impressed him because it showed not only redundancy but also room for growth.

Managing for uptime

The dual role also applies to management modules. 3Com, for example, has two management modules that are each kept up to date at all times so one can take over if the other fails. 3Com, like most vendors, also stores configuration data in nonvolatile random access memory, meaning it will survive I/O module or power failures, so you don't have to manually reconfigure when replacing one module with another.

Other management features to look for include trending tools that can alert you to degrading conditions over time, says Kevin Tolly, president of The Tolly Group, a consulting and testing firm in Manasquan, N.J.

"When you have problems in the network that are not caused by the switch, they very rarely happen all at once," he says. "There are usually some tremors before the big one."

As part of its CiscoWorks/2000 management system, Cisco provides availability monitors that can help you conduct the kind of trend analysis Tolly suggests, says Merwyn Andrade, product manager for high availability networking in Cisco's enterprise line of business.

With CiscoWorks, users can monitor any part of a switch they want, setting thresholds that trigger alerts when they are exceeded.

Temperature is one such variable that warrants special concern, expert say. 3Com monitors three distinct temperature zones in the CoreBuilder 9000 and has three cooling-fan trays to help keep things in check. Under normal conditions, the fans run at half-speed. Should one fail, 3Com's McCarron says the others speed up to compensate.

Additionally, users can preconfigure the switch to shut down certain I/O modules if the switch gets too hot, giving preference to the most critical modules.

Maintenance of fans and other components is an issue to Nortrop Grumman's Sullivan. "I don't like things that require human intervention-type maintenance — someone having to walk up to it every six

months and clean something," he says. "That kind of thing is an invitation to disaster."

Configuration considerations

Even the most reliable switch is bound to go down at some point, more likely because of a software glitch than a hardware failure. But there are a number of features commonly built into LAN switches that can help you weather such a failure.

At the simplest level, many switches let you con-

figure a given switch-to-server or switch-to-switch connection with a backup link that kicks in should the primary fail. In Layer 2 switch environments, the Spanning Tree Protocol provides for failover even in multivendor networks, although it takes 30 to 60 seconds to complete the transition. Protocols such as the Open Shortest Path First and Routing Information Protocol provide essentially the same function for Layer 3 networks.

Many switches also support some form of link aggregation, in which you can configure multiple physical point-to-point links between two switches, or between a switch and a server, to act as one logical link. This not only provides additional bandwidth, but also fault tolerance — if one of the links goes down, you've still got the others to take over.

The IEEE 802.3ad Link Aggregation Protocol should make this capability possible even across multivendor networks. The standard is expected to be finalized by the first quarter of 2000 or earlier, according to an IEEE spokeswoman.

Vendors, including 3Com, take the concept one step further by enabling the aggregate link to be divided among divergent paths. For example, a logical link between Switches A and D might consist of two different paths, one going through Switch B, the other through Switch C. This capability is also now being standardized with the emergence of the Multi-Point Link

Aggregation Protocol.

For Layer 3 routing environments, there are two routing protocols that provide fault tolerance. In router environments, any given client must have a primary gateway or router to which it sends all IP traffic. If that primary goes down, you either have to reconfigure all the clients to point to a new gateway, or bring up another gateway with the address of the one that failed. Both options are time-consuming propositions.

The Hot Standby Routing Protocol (HSRP), backed by Cisco, and the Virtual Router Redundancy Protocol (VRRP), backed by a number of other vendors, enable a backup router to step in should the primary fail, masquerading as the failed router with no manual reconfiguration.

Theoretically, either protocol should work in multivendor networks. But it's early yet, and it's unclear just how well vendor implementations will work together. (The Tolly Group and Network World are



conducting tests to determine how well capabilities including VRRP and the link aggregation protocol work in practice. Look for results in the Sept. 13 issue.)

Cisco's Andrade argues that the single biggest factor contributing to network downtime is failure to recognize the impact of change. Before making any kind of configuration change, he says you should prepare a checklist detailing all the variables involved and the effect each variable may have on other devices or applications.

Ideally, you should perform the change in a lab environment first. If it's a wide-scale change, have a plan in place for rolling back should something go wrong. And Andrade advises customers to consider making changes in small steps rather than one giant Friday night upgrade.

Finally, there are environmental considerations concerning high availability. In addition to sound power and a good air conditioning system, it comes down to paying attention to the finer points, Sullivan says.

Consider sprinkler systems, for example. If you're in an area where fire codes demand them, there may come a day when they go off. Chances are your equipment will survive, Sullivan says, unless you forget one important thing.

"The same user who put the sprinkler in might not remember to put a drain in the floor," he says. "The water backs up, you have a little flood and it short-circuits all the cables."

"OK, everyone make a note: 'Got sprinklers? Check for drains.'"

Desmond, a former Network World editor, is now vice president of King Content, a strategic publishing company in Walpole, Mass. He can be reached at paul_desmond@king-content.com.



Q

Streamlined?

Yes, and totally fine-tuned. In fact, we've reengineered the whole Compaq Armada Series to travel better. So it gives everyone in the enterprise nonstop computing convenience, no matter what part of the globe they happen to be computing from. The Compaq Armada family is lighter, with new rounded edges for easier packing. Open it, and the intelligent design continues, with colored key buttons that are easy to identify, and a new, ergonomic palmrest. Not to mention the high quality and reliability that help your company run nonstop—in the office or on the road. Details? Call 1-800-AT-COMPAQ, or visit www.compaq.com/armada.



COMPAQ Better answers.™

Armada M300 Series @ \$1,999*
• 3.1 lbs., 0.9" thin • Mobile Intel® Celeron™ processor 333 MHz • 11.3" color TFT display
• 4 GB** Hard Drive • 64 MB RAM • 56K V.90 Integrated modem* • Optional Mobile Expansion Unit

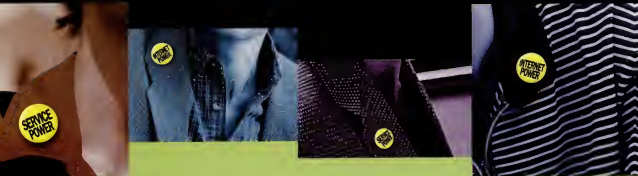


CONFERENCE AND EXHIBITION
For the Enterprise and Service Provider Markets

NETWORLD + INTEROP | EXPO COMM

GEORGIA WORLD CONGRESS CENTER
Atlanta, Georgia | September 13-17, 1999

Build the New Public Network.



DON'T MISS...

- Conferences on Service Provider Solutions and Networking
- One-day Programs on Voice over IP, Optical Networking, VPN and Network Forensics
- Over 50 in-depth Tutorials and Workshops
- InteropNet Event Network (eNet) and Labs (iLabs) covering VPNs, Voice/Fax over IP, high bandwidth, and MPLS
- Solutions Pavilions on Convergence, xDSL, Security, Web Technologies, and Linux
- Exhibits from over 500 of the World's Leading Telecommunications, Networking, and Internet Technology Suppliers

Advanced Solutions for Next-Generation Service Providers and Carriers

Applications Services—one of the hottest areas you face today—is given full attention in our comprehensive conference sessions. Uncover the technologies and strategies for providing these services, and learn how to do business in a network-centric and applications-hungry world.

Access solutions for building and managing IP-based networks for CLECs, ISPs, cable companies, RBOCs, IXCs and ILECs. The combined power of NetWorld+Interop and EXPO COMM offers service provider professionals solutions to meet the challenges of a fast-paced and rapidly converging networking and telecommunications arena.

If you need answers today, there's only one conference and exhibition that gives you the most up-to-the-minute information—NetWorld+Interop 99 Atlanta.



©1999 ZD Events Inc. All rights reserved.
333 Village Park Drive, Foster City, CA 94404
MANAAMS

INFRASTRUCTURE FOR THE NEW ECONOMY

Register Today! For complete conference, exhibition and pricing information visit
www.interop.com/Atlanta or call 1-888-886-4057



Delano e-Business Interaction Suite

Product: Delano e-Business Interaction Suite

Vendor: Delano Technology

The simplicity with which the Delano e-Business Interaction Server fits into existing e-commerce infrastructures and its overall flexibility in offering e-mail features to any Web site earns the product a World Class Award.



Web and e-mail: A great couple

Technology's new server provides built-in e-mail for e-commerce sites, but at what cost?

BY THOMAS POWELL

Much has been said about how a company's Web site serves as the cornerstone of its electronic commerce efforts. However, the ubiquity and power of the simple e-mail message is also an imperative building block for business success on the Internet.

However, building hybrid e-mail/Web applications can be tedious and expensive.

The Delano e-Business Interaction Suite, released in May (when it was called E-Mail Application Server), takes a stab at bridging the gap between e-mail and Web-based applications. Delano's product brings together Web and e-mail applications in a simple and powerful package. While some shops may be shocked at the product's high price—it starts at \$50,000—or concerned with its Windows NT-only focus, Delano e-Business Interaction Suite's ease of use, the simplicity with which it integrates with existing systems and its overall flexibility earns the product our World Class Award.

The server doesn't have to reside on your corporate e-mail or Web server. Instead, it can remotely monitor any Post Office Protocol 3 or Internet Message Access Protocol 4 server and decide what to do with the messages. It can spawn a reply, route a message to a particular user, store a message to a database and perform many other actions. The fact that it can sit in the middle of a vari-

ety of existing mail servers and Web technologies lets an organization easily implement the product without interfering with established systems. This is one of the server's key strengths: It doesn't require you to use a particular e-mail system, Web server, directory server or database.

The product consists of three major modules: the e-Business Application Builder, the e-Business Interaction Server and the e-Business

Interaction Server Administrator. The e-Business Application Builder can be run from a client system or run with the e-Business Interaction Suite itself on the server. The Application Builder is a workflow-style application that lets you build an e-mail application by dragging Delano-specific software components onto a workspace and connecting them together like a flow chart.

The e-mail application begins with a "start event" component that could be the receipt of an e-mail message to a particular account, the submission of a Web form via HTTP, the occurrence of a timed event or the launch of some other script. Once the application has been triggered, it can invoke a variety of "action" components. The options include parsing the message text, calling up another script, running an external program, querying a database, saving the content to a file or database, returning a Web page via HTTP or sending out an e-mail message.

You can use simple decision components to perform comparisons or loop through data. However, given that you can access server-side scripts written in JavaScript or VBScript, you can write code to implement any form of decision beyond the ones included in the product. Lastly, a "wait" component can be used to make the program wait for a particular event, such as a user responding to an e-mail message or an HTML form.

Delano e-Business Interaction Suite made it very easy to build a rudimentary mail responder that would send back canned responses when e-mail came to an address such as sales@democompany.com. It was also fairly simple to create an application that took entered data, saved the data to a file or database and then presented a confirmation screen. We also created scheduled e-mails that would query a database to send a message to users who hadn't logged on to the site recently, and an application that routes messages based upon simple string comparisons of message subjects.

ScoreCard

Delano e-Business Interaction Suite

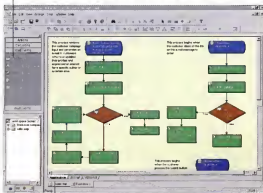
Programming (25%)	8
Integration (20%)	10
Ease of use (20%)	10
Automation (15%)	8
Installation (10%)	10
Documentation (10%)	8
Total score	9.0

Individual category scores are based on a scale of 1 to 10. Percentages are the weight given each category in determining the total score. The World Class Award goes to products that earn 9.0 or above on our ScoreCard.

Building e-mail into your Web site

The e-Business Interaction Suite lets you build an e-mail application into a Web site by dragging software components onto a workspace and connecting them.

The palette contains some of the components you can drag onto the workspace.



These tabs let developers modify the application and add script language commands.

The complexity and Web integration of the application is up to the designer. For example, Delano demonstrates a simple reminder-based system on its Web site that can send scheduled e-mails to users based upon events that users enter via a Web form.

Administering various server features can be controlled from an administrator module that lets you monitor and control the e-mail application you build. If you'd rather do this from a Web browser, you can also use an optional Web-based version of the administrator, as well as Delano Web Connector, a Web server application that enables the prod-

uct to deal with form queries and create dynamic pages.

Installation of Delano e-Business Interaction Suite 1.0 is very easy. The product has modest requirements: a copy of Windows NT Workstation or

Server 4.0 with the latest service pack applied, 128M bytes of RAM and 40M bytes of disk space.

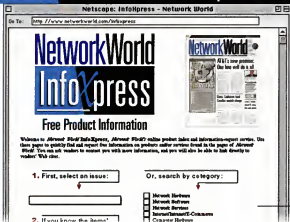
The best thing about the Delano environment is how easy it is to build e-mail-based applications. The

design environment was intuitive. It was a snap to debug and deploy the applications.

The downside is that the product always seemed to require something else, such as a database or some

Try it today at:

www.networkworld.com/infoxpress



NetworkWorld InfoXpress is reader service at its best.

An online service designed to furnish readers with a quick and easy way to request information, NetworkWorld InfoXpress offers readers:

- Easier access to more relevant information.
- 24-hour service.
- The ability to search for information by reader service number, advertiser name or product category.
- Flexibility in requesting information via mail, email, telephone, fax or linking to the advertiser Web page.

AN IDC COMPANY



NetworkWorld
NO. 1 LEADER
IN NETWORK
KNOWLEDGE
Product - Industry - Events
AN IDC COMPANY

NetResults

Delano e-Business

Interaction Suite

Delano Technology

(905) 764-5499

www.delanotech.com/

products/index.asp

Starts at \$50,000

Pros

- ▲ Strong e-mail automation capabilities
- ▲ Very easy-to-use visual development tool
- ▲ Fits in well with existing e-mail, Web or database systems

Cons

- ▼ High price
- ▼ Requires other products to enable full capabilities

other application, to do much of anything beyond what a simple mailing list program or server-side scripting environment, such as Microsoft's Active Server Pages or Allaire's ColdFusion, could handle.

This is the product's strength and its weakness. Because Delano e-Business Interaction Suite doesn't require any particular technology, it can fit into any e-commerce infrastructure. Web application development environment or personalization system in place. On the other hand, if you don't have all the pieces of your Web site in place, it won't help much. If you expect to create personalized messages for site visitors, you'd better have a user database or membership system in place. If you want to let people know their order status, you need to understand your e-commerce system so you can grab the data and send a message. In short, if you want to do something sophisticated with Delano e-Business Interaction Suite, you probably ought to have done portions of it already in another technology.

Delano's solution to e-mail/Web integration isn't for everyone because its pricing sets it up squarely as an enterprise application. Pricing is based upon the number of applications deployed, ranging from \$50,000 for midsize implementations to \$250,000 for enterprise-class deployments.

For those who have complex automated messaging requirements, Delano e-Business Interaction Suite's pricing may not be an issue. The product's power and ease of use live up to its high price.

Powell is the founder and president of PINT (www.pint.com), a San Diego web development firm. He is also the author of *Web Site Engineering and HTML: The Complete Reference*. Powell can be reached at tpowell@pint.com.

Toshiba has positioned its Magnia 7000 as a high-performance, general-purpose enterprise server. We found its performance a little lower than expected from a server in this class, but the Magnia 7000 has a good feature package that allows it to be flexible and grow with your needs.

Overall performance was average at 7.4. The file test score of 4 pulled down the overall performance score, most likely because the disk arrays were configured for RAID5 and not RAID0, as many vendors configure the servers they send us. RAID5 adds additional overhead from writing the parity information across the array but is a prudent choice for enterprise server users. The Magnia's network score of 9 was in line with the other servers we have tested. At 9.5, the SQL scores were strong, too, but lower than many of the servers we have tested. Faster 500-MHz or 550-MHz processors would help the SQL score and probably the other scores as well.

While performance was average, the server's price was a bit high at \$53,350. Some of the cost of the unit we tested was due to its copious amount of disk space — about 110G bytes.

Our Magnia 7000 came with four 450-MHz Pentium II Xeon processors, 2G bytes of ECC EDODynamic random-access memory, 12 9.1G-byte hot-plugable hard drives, four Fast Ethernet network interface cards (NIC) and four hot-swappable redundant load-balancing power supplies. The motherboard has onboard UltraNarrow and UltraWide SCSI controllers. The UltraNarrow SCSI controller was used to run the CD-ROM, while the UltraWide SCSI controller was unused in this configuration due to the presence of an AMI MegaRAID 438 two-channel Ultra2 RAID controller.

The hard drives were installed



into the two drive cages that are accessible from the front of the server. Each of the cages was on a separate SCSI channel on the RAID controller. The 12 hot-pluggable drive carriers — a relatively large number of onboard drives — are well-designed and easy to use, but the drive slots support only 1-inch drives. The front door can be configured to lock the whole server or split to secure just the hard drives.

We configured two RAID5 arrays across the 12 hard drives, one for NT and the other for NetWare. The Fast Ethernet NICs were configured for 100MB bit/sec full-duplex operation.

The first thing we noticed with this server was that its chassis foot-

Solid server has gigabytes to go

Toshiba's Magnia 7000 is an enterprise server you can grow into.

BY JOHN BASS,
NETWORK WORLD TEST ALLIANCE



print is larger than average. Its height and width are average, but it is a good six inches deeper than other enterprise servers we've tested. The case is easy to dismantle with a convenient tool-less entry design, but accessibility to the individual internal components is awkward due to the cumbersome layout of the internal wiring. The fan's wiring harness blocks the removal of one of the CPUs. The fans are not hot-swappable, and the fan cards are difficult to remove due to the routing of the fan wiring. However, the two redundant fan cards provide ample air flow through the server.

The Magnia 7000 has room for expansion, with seven PCI slots and 16 RAM slots. The four power

Feature and configuration table

Server	Magna 7000
Vendor	Toshiba (800) 867-4422 www.cad.toshiba.com/cgi-bin/WebObjects/Toshiba/www/productSeries/productType6-33/productFamilyId-16/productId-16-30
Price	\$53,350
Processor type	450MHz Pentium II
Number of processors	4
Number of processors supported	4
Memory configuration	2G bytes ECC EDODRAM
Number and type of RAM slots	16
Expansion slots present	(6) 32-bit 33MHz PCI (1) 32-bit 33MHz ISA/PCI (1) ISA
Expansion slots available	(1) 32-bit 33MHz PCI (1) 32-bit 33MHz ISA/PCI (1) ISA
Disk controller	UltraWide SCSI controller on board UltraNarrow SCSI controller on board AMI MegaRAID 438 two-channel Ultra2 SCSI with 16M bytes of EDdCache memory
Hard drive description	(12) 1-inch Seagate 9.1G byte 10K RPM
Number and description of hard drive bays	(2) each with 6 1-inch hot-plug SCA slots
Network interface	(4) Intel Pro 100+ Fast Ethernet
CD-ROM	32X UltraNarrow SCSI
Availability features	EDC memory No hot-swappable power supplies Hot-pluggable drives in RAID5 configuration
Manageability features	Intel LANDesk Server Manager
Security features	Lockable split front door and case cover
Bundled software	LANDesk Server Manager with snap-ins for integration into management platforms Intel Server Control Operating System drivers Server Setup Tool for NT Uniscanter TNG Framework
Warranty	3-year on-site next business day parts and labor

ScoreCard

Toshiba Magnia 7000

Performance (40%)	7.4
Features and flexibility (30%)	8
Manageability (20%)	7
Serviceability (10%)	8
Total score	7.6

Individual category scores are based on a scale of 1 to 10. Percentages are the weight given each category in determining the total score.



supplies are 3+1 redundant because three power supplies are needed to run the server with four processors and 12 hard drives.

The Magnia 7000 can be managed by HP OpenView, Tivoli TME 10

framework and CA Unicenter TNG through Intel LANDesk Server Manager that comes with the server. The server also incorporates Intel's Emergency Management Port, which allows remote serial access

through a COM port. The server has a built-in Server Management Controller, which has its own CPU for monitoring the fans, power supplies, hard disks, memory and system temperatures.

On the other hand, Toshiba provides no Web management interface or proprietary management software.

Server testing is performed at North Carolina State University's Centennial Networking Labs (CNL) in Raleigh, N.C. CNL tests network equipment and network-attached devices for interoperability and performance. John Bass is a senior technical staff member at CNL who designs and leads the execution of the test suites. He can be reached at john_bass@ncsu.edu.



Bass is also a member of the Network World Test Alliance, a cooperative of the premier

reviewers in the network industry, each bringing to bear years of practical experience on every review. For more Test Alliance information, including what it takes to become a member, go to www.nwfusion.com/alliance.

Voice-Data Convergence • Quality of Service • Gigabit Ethernet
Policy-Based Management • Layer 3 and Layer 4 Switching

It's time to stop the buzzing inside your head.

Learn what's right for your network.



State of the LAN: Creating a Master Plan for Your Next-Generation Network

As the industry converges on Ethernet-at-some-speed as the universal choice for Local Area Networks, there is an overabundance of often overlapping options for designing a next-generation LAN. Unless you can comprehend and evaluate all of them, you may choose to delay implementation which will only create more work for you down the road if you're involved in network design, deployment, and operation of corporate, SP or ISP networks, you need to attend State of the LAN: Creating a Master Plan for Your Next-Generation Network. It is the best opportunity to have your most critical LAN management questions answered and stop the buzzing in your head.

Six reasons not to miss this **FREE** seminar:

1. Find out how policy-based networking can radically change the management of your next generation LAN.
2. Discover how Layer 4 switching can turbo charge your IP convergence strategy.
3. Learn about the latest developments in QoS initiatives and the trade-offs between different approaches.
4. Examine opportunities for voice-data integration and the convergence of PBX and the LAN.
5. Understand the most cost effective methods for integrating legacy LAN topologies and communications protocols.
6. Learn how Gigabit Ethernet and ATM complement each other in the enterprise.

Moderators

John Gallant, Editorial Director, Network World and Kevin Tolly, President, The Tolly Group



Along with the leading networking solutions providers in this unique interactive event, John and Kevin will examine the LAN challenges you face and provide you with a focused opportunity to learn how to solve them.



1999 Fall Tour

Chicago, September 22 • Dallas, September 23 • Washington, DC, September 28
Toronto, September 29 • San Francisco, October 13 • Los Angeles, October 14
Boston, October 26 • New York, October 27

Registration is **FREE**. Call today. (800) 643-4668
www.nwfusion.com/townmeeting/lan

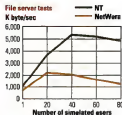


PRESENTING SPONSORS:

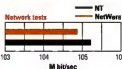
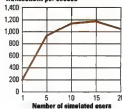


EXHIBITING SPONSOR:

Benchmark results



SQL tests





Never underestimate the value of a second opinion, especially when it comes to network security. Sometimes it takes an objective outsider to see gaping security holes that you've overlooked for months; that's why network security consultants are in such demand. But consultants are expensive, and they're only around for a short while. Wouldn't it be great if you had 24-7 access to a consultant for security assessment and evaluation?

Well, you can. Security monitoring and scanning software can give you the continuous security analysis you need at considerably less cost than a human security consultant. The programs start with a careful assessment of your network's security systems. They identify server vulnerabilities and suspicious user activities, then suggest corrective actions. Some even implement their suggestions for you.

Because their role is advisory, the value of these products lies as much in their reporting capabilities as in their analytical ingenuity. After all, what good is detecting a potential security breach if the product can't effectively communicate where that breach is and how to fix it? In addition, like all good consultants, the products need to be able to keep current with the most up to date security advancements and alerts.

The product that delivered the best combination of these features in our tests was BindView Development's Network Security Suite, which consists of two pieces: HackerShield and NOSadmin for Windows NT. HackerShield is the network scanning portion of BindView's suite, while NOSadmin concentrates on server security. Together the two products create a thorough, flexible and easy-to-use security monitoring and management package.

Right on Network Security Suite's heels was Computer Associates' eTrust Intrusion Protection, a product formerly known as SessionWall-5 when it was sold by Platinum Technologies and Altnet. The newly christened eTrust delivers competitive monitoring and analysis features and strong reporting options.

Scanning for weak links in server security

BindView's Network Security Suite is a World Class watchdog.

BY TERE PARNELL,
NETWORK WORLD TEST ALLIANCE

It's also much more than a security auditing product and includes a fire-wall, real-time intrusion-detection system and business policy analyst. (We didn't require products to include real-time intrusion-detection and alerting features, nor did we test them. Our tests focused on security assessment and prevention, and our ScoreCard rates analytical and reporting capabilities. Stay tuned for our Intrusion Detection Buyer's Guide this fall).

Close behind was WebTrends' Security Analyzer 2.1, Enterprise Edition, whose excellent analysis features and easy access to third-party security tests were tough to beat.

The final product we tested was TripWire Security Systems' TripWire 2.1 for Windows NT. While TripWire features bulletproof internal system security, it lacks a graphical user interface (GUI), and its reporting features were not as well developed as those of its competitors.

Product: Network Security Suite

Vendor: BindView Development

You can count on BindView's HackerShield and NOSadmin duo for all-around security auditing.



Monitoring hosts for trouble

We began by using each product to identify and record changes that might create vulnerabilities on our servers. At the very least, we expected each of these programs to identify and report which protocols were used to access which host resources. This is one of the most basic functions of host security monitors.

All the products we reviewed performed this function admirably, but for thorough, hassle-free scanning, BindView's HackerShield module

won highest marks. While it doesn't have some of the more exotic functionality of CA's eTrust Intrusion Protection, HackerShield provided the best all-around security management features. For example, HackerShield continuously scans for security violations and potential security threats throughout the network, rather than scanning only at fixed intervals as the others can. It was able to tell us about unauthorized accesses to a simulated payroll database on one of our hosts, including what ports and protocols were used to get to the host.

CA's eTrust Intrusion Protection went far beyond general monitoring. It didn't just decode network protocols and service traffic; it actually captured all packets and presented them in their original formats. This means network managers could use eTrust Intrusion Protection to read e-mail, see the content of Web pages viewed by users and identify the documents accessed by users — legal and ethical implications notwithstanding.

We liked being able to configure eTrust Intrusion Protection to monitor only selected traffic types, so you can watch Web traffic and ignore e-mail traffic, for example.

We really liked the monitoring and scanning capabilities of WebTrends' Security Analyzer. This product quickly and easily lets you select what host or hosts you want to monitor, as well as specify precise types of changes you want to monitor. For example, Security Analyzer will let you check your Web servers twice a day for potential holes in Common Gateway Interface scripts.

TripWire 2.1 took a standard approach to host monitoring. It initially created a baseline database that recorded the condition of the host. It then monitored the host for deviations from that baseline.

What makes TripWire unique is its bulletproof internal security. A secure monitoring system is just as important as the external security it aims to provide. While all took adequate steps to protect themselves, TripWire 2.1 exhibited outstanding internal security, guarding its critical files with 128-bit asymmetric cryptography.

ScoreCard

	Analysis 25%	Monitoring 25%	Reporting 15%	Alerting and corrective action 15%	Usability 10%	Installation 5%	Documentation 5%	Total score
BindView's Network Security Suite	9	10	8	9	5	10	8	9.10
Computer Associates' eTrust Intrusion Protection	10	9	8	8	9	5	8	8.90
WebTrends' Security Analyzer 2.1	8	9	8	7	8	9	8	8.15
TripWire Security Systems' TripWire 2.1	7	8	7	6	5	7	8	6.95

Individual category scores are based on a scale of 1 to 10. Percentages are the weight given each category in determining the total score. The World Class Award goes to products that score 8.0 or above on our ScoreCard.

Analysis is key

If monitoring capabilities are the feet on which these security auditing packages stand, then their analysis aptitude is their brain. We expected each product to be able to identify system changes, such as a change in user access authorization, network address or protocol, and determine whether the changes were suspicious in nature. This involves letting network managers establish, edit and refine a set of security policies governing access to network resources. For example, you may want to regularly scan the well-known ports of your hosts for signs of possible attack, such as an abnormally high number of attempted accesses from restricted IP addresses.

While each product offers such a capability, we found that implementations varied. WebTrends' Security Analyzer offered the most advanced policy management. Its Security Test Policies evaluate different types of server vulnerabilities. In addition to a fine suite of canned security tests, which includes such detailed items as "Most Occurring Medium Risk Vulnerabilities," Security Analyzer lets you write your own tests and add them to the suite, or download tests prepared by third-party developers.

At the other extreme, straight out of the box BindView's Network Security Suite offers the most basic type of policy management, such as event logging. However, it also provides a developer's kit that lets you customize your policies.

True to its Unix roots, TripWire 2.1 has a solid policy file that checks for any changes in the host system. However, if you find any violations, you must manually update the policy database using a painstaking editing procedure.

And while WebTrends impressed us with its policy management capability,

ties and tools, the overall winner in the analysis category is CA's eTrust Intrusion Protection, for its ability to reach so far into the (supposedly) private workings of each and every user on the network.

Report and resolve

If analysis is the brains, then reporting is the heart of these products.

For easy, in-depth reporting, BindView's NOSAdmin stands out, offering an array of predefined, detailed security reports. Although you can customize these reports, you may find that you won't need to.

We also liked the report generator in CA's eTrust Intrusion Protection, which exhibited line flexibility. For example, you can view network usage by just about any type of user, including protocol, client and server. eTrust offers a variety of report formats, with information well organized to aid in finding overwhelmed servers and "problem children" among the user community.

For straightforward reporting, we were again impressed with WebTrends' Security Analyzer. Its easy-to-use, predefined reports are thorough, and WebTrends includes some sophisticated custom reporting and formatting capabilities, such as allowing you to easily create foreign-language versions of your reports.

Finally, while the reports provided by TripWire 2.1 were good, we found that formatting and working with them was often awkward. Part of this awkwardness is due to the product's command-line interface, though some of the reports themselves were difficult to interpret.

Once a security problem has been detected, the ideal product doesn't simply tell you about it. Rather than rely on a network manager's ability to interpret the data, the most useful products can recommend and, with

permission, implement a solution.

The most impressive day-to-day corrective action capabilities are those of BindView's HackShield. We found its Auto-Fix feature, which automatically fixes the security problems uncovered, to be a reliable way to quickly close security holes. For example, HackShield immediately recognized and fixed a misconfigured NetBIOS server that was letting the world enter our network.

CA's eTrust Intrusion Protection instantly notifies you of security problems and even makes some recommendations on how to fix them. By configuring eTrust to monitor certain network events—such as accessing a particular Web site—you can keep track of who is visiting forbidden Web sites, and how often. And eTrust can reveal much more than traffic to unauthorized Web locations. eTrust can, for example, alert network managers when it finds unauthorized language in e-mails, though the product doesn't block offending traffic.

Our only real problem with WebTrends Security Analyzer surfaced

when we evaluated its notification features. Security Analyzer doesn't make much of an effort to point out potential security threats or violations and doesn't really offer any recommendations for fixing them, much less correcting problems automatically. Its reports are so good, however, that it's easy to surmise problems at a glance. We'd prefer to see problems highlighted, nonetheless.

TripWire 2.1 employs fairly pedestrian notification. It simply sends an e-mail when it encounters a security policy violation.

Usability, installation and documentation

WebTrends' Security Analyzer was extremely simple to navigate. With a straightforward user interface and direct means of scanning IP addresses, it's a no-brainer to conduct a quick scan over a subnet or a sweeping scan over the entire network. Security Analyzer also lets you choose if you want to scan only the most critical security aspects of a server or conduct a full analysis of the server's vulnerability.

BindView's Network Security Suite also had an intuitive and easy-to-navigate GUI. Furthermore, to keep its product current, BindView offers the RapidFire update module, which can automatically update HackShield through BindView's Web site. This can prevent long time between the discovery of a new type of security threat and the implementation of a fix.

Security Analyzer's AutoSync feature lets you download security tests developed by third parties from the Security Test Library on WebTrends' Web site.

We were disappointed in TripWire 2.1's basic command-line interface. Originally a Unix-only security system, TripWire was first released as a Windows NT product in April before a GUI was completed. However, the

NetResults

Network Security Suite

BindView Development
(800) 748-8439
www.bindview.com
NOSAdmin and HeckerShield
pricing starts at \$695 per
server. NOSAdmin requires BindView
EMS Enterprise Console, which starts at
\$1,995 per nonconcurrent user.

Pros

- ▲ Excellent scanning and monitoring
- ▲ Easy to use
- ▲ Outstanding update capability

Cons

- ▼ Relatively basic policy management capabilities

eTrust Intrusion Protection

Computer Associates
(800) 225-5224
www.platinum.com/products/
sysman/security/essw_ps.htm
Pricing ranges from \$1,945 for 125
concurrent sessions to \$19,435 for
an unlimited number of concurrent
sessions.

Pros

- ▲ Real-time alerting
- ▲ Excellent business and security
policy management

Cons

- ▼ None significant

WebTrends Security Analyzer 2.1, Enterprise Edition

WebTrends
(503) 254-7025
www.webtrends.com/products/wsa/
default.htm
An unlimited number of IP addresses
costs \$4,999.

Pros

- ▲ Excellent analysis function
- ▲ Easy access to third-party
security tests

Cons

- ▼ Limited notification

TripWire 2.1

TripWire Security Systems
(503) 223-0280
www.tripwiresecurity.com/
prodintro.html
Pricing is \$495 for one to four
seats.

Pros

- ▲ Bulletproof internal system
security

Cons

- ▼ No GUI
- ▼ Report format somewhat cumbersome

company promises a GUI in the next release, which is due before year-end.

We had no trouble installing any of the products. TripWire 2.1 received the lowest marks because its convoluted installation program kept stalling out on us before it finally decided, for no apparent reason, to work.

Similarly, documentation for all the products was encouragingly detailed and instructive; among the four sets of documentation, BindView's stood out for its ample and well-written manuals.

In the final analysis, BindView's Network Security Suite can provide all the monitoring, analysis and corrective help you need. It is easy to install and use and its functionality is more than adequate.

But the competition is close. For those who must know everything that goes on in their networks, there's

nothing better than eTrust Intrusion Protection. WebTrends' Security Analyzer allows incredible flexibility in setting and managing security policies, as well as in monitoring and analyzing the policies' effects. And

the NT newcomer, TripWire 2.1, provides fine, thorough security.

Parnell is a telecom consultant and author with more than 18 years of experience in the telecom and data

network industries. She has written many articles, columns and product reviews and is the author of four books on telecommunications, telephony and data networking. She can be reached at redrenew@att.com



Parnell is also a member of the Network World Test Alliance, a cooperative of

the premier reviewers in the network industry. For Test Alliance information, including what it takes to become a member, go to www.nwfusion.com/alliance

How we did it

We set up a test network consisting of three Windows NT 4.0 servers, five NT Workstation clients and 10 Windows 95 and 98 clients. After installing each of the products and using each to establish a baseline profile of our sample network, we ran scripts that simulated normal network activity: accessing documents, databases and Web sites, as well as sending and receiving e-mail. We then committed two types of security violations on each of the servers: unauthorized resource access and failed or irregular logons, including a brute force attack to gain access to a network resource. After committing these transgressions, we scanned the network again and ran the prepared security reports that each product offered. If the product recommended a correction or fix, we implemented it, then repeated the process. We evaluated each product's management program for alerting and enforcement features, reporting capability and ease of use.



Strategic Network Storage. Take a closer look.

Laying the Foundation for Strategic Network Storage

- Learn why **FREE SEMINAR** and you'll be one step ahead of the competition by:
 - Discovering the areas that the rapid growth in storage is putting on your IT staff, and why in storage, business is what just won't quit it.
 - Learning out how a storage center plan will protect your entire IT infrastructure
 - Examining the key criteria—scalability, flexibility, robustness, and manageability that should guide the storage decision-making process
 - Learning what products and services are available today to help you build a better storage system for tomorrow
 - Listening key vendor executives about their products features, and their plans for the future
 - Figuring out which vendor is most in sync with your long-range storage needs

1999 Fall Tour
 Boston, October 9
 New York, October 1
 Chicago, October 21
 Washington, DC, October 21
 Atlanta, November 10
 Dallas, November 11
 Los Angeles, December 1
 San Francisco, December 2

Registration is FREE. Call today.
(800) 643-4668
www.nwfusion.com/fallmeeting/storage

Network World TOWN MEETING

PRESENTING SPONSORS

bmc
Assessing Business Availability

ICNT
Computer Network Technology

EMC²
The Enterprise Storage Company

EXHIBITING SPONSOR

SONY

hp **HEWLETT PACKARD**

HITACHI
DATA SYSTEMS

LEGATO

If you are interested in presenting or exhibiting sponsorship opportunities, please contact Andrea D'Amato at (508) 820-7520 or adamato@nwf.com.



Management Strategies

Career Development, Project Management, Business Justification

Hot network skills

Unix and network integration experience will let you write your own ticket.

BY LISA KOSAN

At some point during the job interview, William Mannion III takes apart the puzzle ball on his desk and offers it to the candidate. "A good troubleshooter can put it back together in a few minutes or less," says Mannion, IT manager at netWork Masters, a consulting firm in Foxborough, Mass.

The puzzle ball — plus Mannion's offbeat question about favorite pets — isn't the typical strategy for landing candidates with top-notch network skills. But these interviewing techniques are indicative of how well someone can adapt to the field's varied demands.

"In this day and age, if you can't think outside the box, you're not going to be able to get a job," he says.

Mannion is hiring a network administrator. He's been flooded with résumés, but he's got a long list of hot skills the prospects better possess. He quizzes candidates on their understanding of virtual private networks, digital subscriber line technology, switched vs. routed networks, and the hardware they're familiar with before diving into network configurations and protocols.

"The ideal person will have cross-network experience," Mannion says. "I want an eagle who knows how to spot trouble before it becomes a problem."

Tony Taglieri knows all about trouble. He's the network and systems manager for Essex County Newspapers, a chain of three community publications north of Boston. Drives go down, backups get corrupted, and still, the paper has to get out every day.

"Nobody knows the effort it takes to make a system run well," Taglieri says. "But they know when something needs to be fixed. And you'll hear about it."

Taglieri has been in his job about 10 years, is a Certified Novell Engineer, Microsoft Certified Professional and knows what's hot — Unix and Linux, and Web integration software. Current

favorites of Taglieri's include directory access applications, high-speed Ethernet and anything from Cisco.

But having a résumé loaded with up-to-the-minute skills is only the start. "You need to be able to go back to the desktop and understand how it interacts with the server, whether it's Unix, Microsoft or Lotus," Mannion says.

And while voice over IP garners a lot of buzz, telephone and telecom have to take a back seat at most shops due to a lack of resources — time, money and staff.

Carin Stary, a senior technical recruiting agent for Hall Kinson, a San Francisco high-tech recruiter, sees a trend toward hiring network professionals who can handle the heat and articulate a technical vision. "[Companies] want individuals that can communicate well, deal with people, calm them down, go in and analyze a situation," she says.

Unix administrators are sought after — and scarce — in an NT-dominated market, Stary says. "The ones you do find with heavy NT and Unix skills, I can literally sell their skills right over the phone."

Demand for senior IT executives, including network administrators and engineers, is "overheated," says Charles Pappalardo, managing director of technology and venture practice for Christian & Timbers, a high-tech executive search firm in Cleveland.

"People are being promoted earlier than normal and are being asked to step way up" in their management and interpersonal skills. They also need to stretch their technical capabilities to succeed in the top jobs, Pappalardo says.

The most coveted position in networking tends to be vice president of IT business development, Pappalardo adds. "These people are not only building alliances and partnerships with companies that their companies do business with, but are also doing diligence around technology acquisitions, growing their global networks, and helping implement and integrate network strategies." Essentially, this is the person who is responsible for ensuring the network is on the cutting edge and can interface seamlessly with partner companies.

Do you have what it takes? If you're just coming out of college or a certificate program, please don't go straight for the administration jobs, netWork Masters' Mannion advises.

"Shoot for the help desk," he adds. "In network management, you can't take the textbook and use it. That's not how you do it in real life."

Kosan is a freelance writer and editor in Beverly, Mass. She can be reached at edit@prodigy.net.

CAREER FAIR

If you're going to NetWorld+Interop '99 Atlanta, don't forget to pack your résumé. Network World's Career Fair gives you a great opportunity to learn about job openings at leading companies.

When you're ready to take a break from the show floor, stop by to discuss network career options with representatives from businesses such as AT&T, Boeing, fidelity investments and Lucent, among many others.

There's also a chance to have some fun. We'll photograph you atop a Harley Davidson motorcycle, and you may even win a motorcycle.

Free to all registered attendees, the Career Fair is located in Rooms 216, 217 and 218. Booths will be staffed from 10 a.m. to 6 p.m. on Thurs., Sept. 14, and Wed., Sept. 15, and from 10 a.m. to 4 p.m. on Thurs., Sept. 16.

ONLINE:

- Information about the Career Fair exhibits and job opportunities.



www.nwfusion.com

Build tomorrow's network today.

And now, AT&T Labs - the company's R&D unit - is looking for innovators to create tomorrow's services: Providing seamless, easy-to-use, high quality affordable communication between people and machines.

Send resumes to: AT&T Labs, 200 Laurel Avenue S., Room D3 2A-94, Middletown, NJ, 07748, www.att.com/technology



See us at the Career Fair,
Room 216 East

Whenever people do business, there is EQUANT.

Wherever there is EQUANT, People do Business.

EQUANT is a global telecommunications company that offers you the growth opportunities you've been looking for. You'll help us manage the world's largest voice and data network. And we'll give you everything you need to expand your career. Right now, we're looking for take-charge professionals to join us in our offices nationwide.

Human Resources. Equant Network Services,
3180 Cumberland Circle, 12th flr, Atlanta GA
30339. Fax: 770-303-3595. www.equant.com



EQUANT

See us at the Career Fair,
Room 216 East

Score more hits than yahoo!

Frontier is at the forefront of the data revolution. We are the leading "next generation" national communications company, positioned for success in the 21st Century.

Frontier Communications, Attn: Corporate Staffing/LP, 180 South Clinton Avenue, Rochester, NY 14646



See us at the Career Fair,
Room 216 East

Ready for an Exciting Change?

Fujitsu Software Corp., a subsidiary of Fujitsu Ltd., focuses on designing, developing and marketing of leading-edge software products and services. Our multinational employees enjoy a fun and casual environment are constantly challenged to develop innovative technology solutions in five primary business directions: Groupware Computing, Enterprise Management, Programming Languages & Tools, Unix Groups & Japanese/English Software. Please send resumes to Fujitsu Software Corp., 3055 Orchard Dr., San Jose, CA 95134-2022; Fax: (408) 456-7888 or Email: jobs@fsc.fujitsu.com, www.fsc.fujitsu.com.



See us at the Career Fair,
Room 216 East

The Shape of Things to Come

Your Future is about to be changed. Join an exceptional team of Network Consultants within one of the "Top 100 Companies To Work For" (Fortune magazine), and enjoy exceptional growth potential, competitive salaries and outstanding benefits. If you possess a fervent level of energy and the desire to make a difference, e-mail your resume to staffing@ins.com please reference JF-INTEROP EOE.

www.ins.com
www.lucnet.com



The knowledge behind the network. Lucnet Technologies

See us at the Career Fair,
Room 216 East

Today's Hottest Fields are...

networking, simulation, & software engineering. MIL3 is where they intersect. Our clients are global. Our impact significant. Your opportunities are unlimited. MIL3 is looking for highly motivated, creative, and talented people to join our team as we define the state-of-the-art in modeling and simulation.

For immediate consideration, please forward your resume to Erika Bohrer, MIL3 Inc., 3400 International Drive, NW, Washington, DC 20008, FAX: (202) 364-2684. www.mil3.com



See us at the Career Fair,
Room 216 East

See these companies and more at the Network World Career Fair

September 14, 15, 16
NetWorld+Interop '99, Atlanta
Georgia World Congress Center
Room 216 East

For more information on exhibiting companies go to www.nwfusion.com
or call 800-622-1108 ext. 7454



The knowledge behind the network



Lucent Technologies
Bell Labs innovations

The Shape of Things to Come

NetCare - Announcing the biggest partnership in the networking industry. INS and Lucent Technologies are merging to become NetCare! By joining forces, we will have the most extensive and complete array of solutions and services for next-generation networks ever offered by one company. Lead the revolution/evolution of communications networking solutions for enterprise and service providers worldwide with a common commitment to support multivendor communications networks. *You could say, the shape of things to come is already here.*

• NETWORK SYSTEMS ENGINEERS

• NETWORK MANAGEMENT ENGINEERS

• SECURITY ENGINEERS

• VOICE/DATA NETWORK ENGINEERS

Your future is about to be changed. Join an exceptional team of Network Consultants within one of the "Top 100 Companies To Work For" (Fortune magazine), and enjoy exceptional growth potential, competitive salaries and outstanding benefits. If you possess a fervent level of energy and the desire to make a difference, e-mail your resume to: staffing@ins.com please reference JF-INTEROP EOE

www.ins.com

www.lucent.com

Q. Where can you reap the benefits of thousands of additional exposures for your current employment opportunities?

A. September 13th issue with **BONUS DISTRIBUTION** at NetWorld+Interop (Atlanta).

Call Dodi Rabinovitz in Recruitment Advertising, at 1-800-622-1108 ext. 7454 today for more info. The deadline for the September 13th issue is September 1st.

GTech is the world's leading supplier of products and services to the on-line lottery industry. With a strong commitment to R&D, we are pioneering new technologies that enable us to serve our global customers while maintaining market leadership. Challenging work. Unlimited opportunity. Broadening careers. The odds for success are always in your favor at GTech.

Data Security Analyst

Develop and manage data, systems, network security architecture, and security policies and procedures. Oversee the development of security policies and procedures, as well as enforce audit strategies. Knowledge of PGP products, Antivirus software, network firewall, cryptography products, and/or Internet 10/100 software. ICSD certified a Plus.

WAN Engineer

Design and implement Wide Area Networks for use in online lotteries for customers around the world. Working knowledge of the following: T1, T3, Analog, Digital, Technologies, Analog/Digital WAN connections, Test equipment, including protocol analyzers, Channel and bulk rate T1, T3, T5, Analog leased line services, Frame Relay X.25, and current data technologies. PTO Network Architecture or Radio and Satellite Design a Plus.

Regional Communications Specialists

Perform network audits and performance maintenance for local Area Networks and Wide Area Networks throughout regional data centers. Strong knowledge of LAN/WAN (i.e., T1, T3, T5, T6, T7, T8, T9, T10, T11, T12, T13, T14, T15, T16, T17, T18, T19, T20, T21, T22, T23, T24, T25, T26, T27, T28, T29, T30, T31, T32, T33, T34, T35, T36, T37, T38, T39, T40, T41, T42, T43, T44, T45, T46, T47, T48, T49, T50, T51, T52, T53, T54, T55, T56, T57, T58, T59, T60, T61, T62, T63, T64, T65, T66, T67, T68, T69, T70, T71, T72, T73, T74, T75, T76, T77, T78, T79, T80, T81, T82, T83, T84, T85, T86, T87, T88, T89, T90, T91, T92, T93, T94, T95, T96, T97, T98, T99, T100, T101, T102, T103, T104, T105, T106, T107, T108, T109, T110, T111, T112, T113, T114, T115, T116, T117, T118, T119, T120, T121, T122, T123, T124, T125, T126, T127, T128, T129, T130, T131, T132, T133, T134, T135, T136, T137, T138, T139, T140, T141, T142, T143, T144, T145, T146, T147, T148, T149, T150, T151, T152, T153, T154, T155, T156, T157, T158, T159, T160, T161, T162, T163, T164, T165, T166, T167, T168, T169, T170, T171, T172, T173, T174, T175, T176, T177, T178, T179, T180, T181, T182, T183, T184, T185, T186, T187, T188, T189, T190, T191, T192, T193, T194, T195, T196, T197, T198, T199, T200, T201, T202, T203, T204, T205, T206, T207, T208, T209, T210, T211, T212, T213, T214, T215, T216, T217, T218, T219, T220, T221, T222, T223, T224, T225, T226, T227, T228, T229, T230, T231, T232, T233, T234, T235, T236, T237, T238, T239, T240, T241, T242, T243, T244, T245, T246, T247, T248, T249, T250, T251, T252, T253, T254, T255, T256, T257, T258, T259, T260, T261, T262, T263, T264, T265, T266, T267, T268, T269, T270, T271, T272, T273, T274, T275, T276, T277, T278, T279, T280, T281, T282, T283, T284, T285, T286, T287, T288, T289, T290, T291, T292, T293, T294, T295, T296, T297, T298, T299, T300, T301, T302, T303, T304, T305, T306, T307, T308, T309, T310, T311, T312, T313, T314, T315, T316, T317, T318, T319, T320, T321, T322, T323, T324, T325, T326, T327, T328, T329, T330, T331, T332, T333, T334, T335, T336, T337, T338, T339, T340, T341, T342, T343, T344, T345, T346, T347, T348, T349, T350, T351, T352, T353, T354, T355, T356, T357, T358, T359, T360, T361, T362, T363, T364, T365, T366, T367, T368, T369, T370, T371, T372, T373, T374, T375, T376, T377, T378, T379, T380, T381, T382, T383, T384, T385, T386, T387, T388, T389, T390, T391, T392, T393, T394, T395, T396, T397, T398, T399, T400, T401, T402, T403, T404, T405, T406, T407, T408, T409, T410, T411, T412, T413, T414, T415, T416, T417, T418, T419, T420, T421, T422, T423, T424, T425, T426, T427, T428, T429, T430, T431, T432, T433, T434, T435, T436, T437, T438, T439, T440, T441, T442, T443, T444, T445, T446, T447, T448, T449, T450, T451, T452, T453, T454, T455, T456, T457, T458, T459, T460, T461, T462, T463, T464, T465, T466, T467, T468, T469, T470, T471, T472, T473, T474, T475, T476, T477, T478, T479, T480, T481, T482, T483, T484, T485, T486, T487, T488, T489, T490, T491, T492, T493, T494, T495, T496, T497, T498, T499, T500, T501, T502, T503, T504, T505, T506, T507, T508, T509, T510, T511, T512, T513, T514, T515, T516, T517, T518, T519, T520, T521, T522, T523, T524, T525, T526, T527, T528, T529, T530, T531, T532, T533, T534, T535, T536, T537, T538, T539, T540, T541, T542, T543, T544, T545, T546, T547, T548, T549, T550, T551, T552, T553, T554, T555, T556, T557, T558, T559, T560, T561, T562, T563, T564, T565, T566, T567, T568, T569, T570, T571, T572, T573, T574, T575, T576, T577, T578, T579, T580, T581, T582, T583, T584, T585, T586, T587, T588, T589, T590, T591, T592, T593, T594, T595, T596, T597, T598, T599, T600, T601, T602, T603, T604, T605, T606, T607, T608, T609, T610, T611, T612, T613, T614, T615, T616, T617, T618, T619, T620, T621, T622, T623, T624, T625, T626, T627, T628, T629, T630, T631, T632, T633, T634, T635, T636, T637, T638, T639, T640, T641, T642, T643, T644, T645, T646, T647, T648, T649, T650, T651, T652, T653, T654, T655, T656, T657, T658, T659, T660, T661, T662, T663, T664, T665, T666, T667, T668, T669, T670, T671, T672, T673, T674, T675, T676, T677, T678, T679, T680, T681, T682, T683, T684, T685, T686, T687, T688, T689, T690, T691, T692, T693, T694, T695, T696, T697, T698, T699, T700, T701, T702, T703, T704, T705, T706, T707, T708, T709, T710, T711, T712, T713, T714, T715, T716, T717, T718, T719, T720, T721, T722, T723, T724, T725, T726, T727, T728, T729, T730, T731, T732, T733, T734, T735, T736, T737, T738, T739, T740, T741, T742, T743, T744, T745, T746, T747, T748, T749, T750, T751, T752, T753, T754, T755, T756, T757, T758, T759, T760, T761, T762, T763, T764, T765, T766, T767, T768, T769, T770, T771, T772, T773, T774, T775, T776, T777, T778, T779, T780, T781, T782, T783, T784, T785, T786, T787, T788, T789, T790, T791, T792, T793, T794, T795, T796, T797, T798, T799, T800, T801, T802, T803, T804, T805, T806, T807, T808, T809, T810, T811, T812, T813, T814, T815, T816, T817, T818, T819, T820, T821, T822, T823, T824, T825, T826, T827, T828, T829, T830, T831, T832, T833, T834, T835, T836, T837, T838, T839, T840, T841, T842, T843, T844, T845, T846, T847, T848, T849, T850, T851, T852, T853, T854, T855, T856, T857, T858, T859, T860, T861, T862, T863, T864, T865, T866, T867, T868, T869, T870, T871, T872, T873, T874, T875, T876, T877, T878, T879, T880, T881, T882, T883, T884, T885, T886, T887, T888, T889, T890, T891, T892, T893, T894, T895, T896, T897, T898, T899, T900, T901, T902, T903, T904, T905, T906, T907, T908, T909, T910, T911, T912, T913, T914, T915, T916, T917, T918, T919, T920, T921, T922, T923, T924, T925, T926, T927, T928, T929, T930, T931, T932, T933, T934, T935, T936, T937, T938, T939, T940, T941, T942, T943, T944, T945, T946, T947, T948, T949, T950, T951, T952, T953, T954, T955, T956, T957, T958, T959, T960, T961, T962, T963, T964, T965, T966, T967, T968, T969, T970, T971, T972, T973, T974, T975, T976, T977, T978, T979, T980, T981, T982, T983, T984, T985, T986, T987, T988, T989, T990, T991, T992, T993, T994, T995, T996, T997, T998, T999, T1000, T1001, T1002, T1003, T1004, T1005, T1006, T1007, T1008, T1009, T1010, T1011, T1012, T1013, T1014, T1015, T1016, T1017, T1018, T1019, T1020, T1021, T1022, T1023, T1024, T1025, T1026, T1027, T1028, T1029, T1030, T1031, T1032, T1033, T1034, T1035, T1036, T1037, T1038, T1039, T1040, T1041, T1042, T1043, T1044, T1045, T1046, T1047, T1048, T1049, T1050, T1051, T1052, T1053, T1054, T1055, T1056, T1057, T1058, T1059, T1060, T1061, T1062, T1063, T1064, T1065, T1066, T1067, T1068, T1069, T1070, T1071, T1072, T1073, T1074, T1075, T1076, T1077, T1078, T1079, T1080, T1081, T1082, T1083, T1084, T1085, T1086, T1087, T1088, T1089, T1090, T1091, T1092, T1093, T1094, T1095, T1096, T1097, T1098, T1099, T1100, T1101, T1102, T1103, T1104, T1105, T1106, T1107, T1108, T1109, T1110, T1111, T1112, T1113, T1114, T1115, T1116, T1117, T1118, T1119, T1120, T1121, T1122, T1123, T1124, T1125, T1126, T1127, T1128, T1129, T1130, T1131, T1132, T1133, T1134, T1135, T1136, T1137, T1138, T1139, T1140, T1141, T1142, T1143, T1144, T1145, T1146, T1147, T1148, T1149, T1150, T1151, T1152, T1153, T1154, T1155, T1156, T1157, T1158, T1159, T1160, T1161, T1162, T1163, T1164, T1165, T1166, T1167, T1168, T1169, T1170, T1171, T1172, T1173, T1174, T1175, T1176, T1177, T1178, T1179, T1180, T1181, T1182, T1183, T1184, T1185, T1186, T1187, T1188, T1189, T1190, T1191, T1192, T1193, T1194, T1195, T1196, T1197, T1198, T1199, T1200, T1201, T1202, T1203, T1204, T1205, T1206, T1207, T1208, T1209, T1210, T1211, T1212, T1213, T1214, T1215, T1216, T1217, T1218, T1219, T1220, T1221, T1222, T1223, T1224, T1225, T1226, T1227, T1228, T1229, T1230, T1231, T1232, T1233, T1234, T1235, T1236, T1237, T1238, T1239, T1240, T1241, T1242, T1243, T1244, T1245, T1246, T1247, T1248, T1249, T1250, T1251, T1252, T1253, T1254, T1255, T1256, T1257, T1258, T1259, T1260, T1261, T1262, T1263, T1264, T1265, T1266, T1267, T1268, T1269, T1270, T1271, T1272, T1273, T1274, T1275, T1276, T1277, T1278, T1279, T1280, T1281, T1282, T1283, T1284, T1285, T1286, T1287, T1288, T1289, T1290, T1291, T1292, T1293, T1294, T1295, T1296, T1297, T1298, T1299, T1300, T1301, T1302, T1303, T1304, T1305, T1306, T1307, T1308, T1309, T1310, T1311, T1312, T1313, T1314, T1315, T1316, T1317, T1318, T1319, T1320, T1321, T1322, T1323, T1324, T1325, T1326, T1327, T1328, T1329, T1330, T1331, T1332, T1333, T1334, T1335, T1336, T1337, T1338, T1339, T1340, T1341, T1342, T1343, T1344, T1345, T1346, T1347, T1348, T1349, T1350, T1351, T1352, T1353, T1354, T1355, T1356, T1357, T1358, T1359, T1360, T1361, T1362, T1363, T1364, T1365, T1366, T1367, T1368, T1369, T1370, T1371, T1372, T1373, T1374, T1375, T1376, T1377, T1378, T1379, T1380, T1381, T1382, T1383, T1384, T1385, T1386, T1387, T1388, T1389, T1390, T1391, T1392, T1393, T1394, T1395, T1396, T1397, T1398, T1399, T1400, T1401, T1402, T1403, T1404, T1405, T1406, T1407, T1408, T1409, T1410, T1411, T1412, T1413, T1414, T1415, T1416, T1417, T1418, T1419, T1420, T1421, T1422, T1423, T1424, T1425, T1426, T1427, T1428, T1429, T1430, T1431, T1432, T1433, T1434, T1435, T1436, T1437, T1438, T1439, T1440, T1441, T1442, T1443, T1444, T1445, T1446, T1447, T1448, T1449, T1450, T1451, T1452, T1453, T1454, T1455, T1456, T1457, T1458, T1459, T1460, T1461, T1462, T1463, T1464, T1465, T1466, T1467, T1468, T1469, T1470, T1471, T1472, T1473, T1474, T1475, T1476, T1477, T1478, T1479, T1480, T1481, T1482, T1483, T1484, T1485, T1486, T1487, T1488, T1489, T1490, T1491, T1492, T1493, T1494, T1495, T1496, T1497, T1498, T1499, T1500, T1501, T1502, T1503, T1504, T1505, T1506, T1507, T1508, T1509, T1510, T1511, T1512, T1513, T1514, T1515, T1516, T1517, T1518, T1519, T1520, T1521, T1522, T1523, T1524, T1525, T1526, T1527, T1528, T1529, T1530, T1531, T1532, T1533, T1534, T1535, T1536, T1537, T1538, T1539, T1540, T1541, T1542, T1543, T1544, T1545, T1546, T1547, T1548, T1549, T1550, T1551, T1552, T1553, T1554, T1555, T1556, T1557, T1558, T1559, T1560, T1561, T1562, T1563, T1564, T1565, T1566, T1567, T1568, T1569, T1570, T1571, T1572, T1573, T1574, T1575, T1576, T1577, T1578, T1579, T1580, T1581, T1582, T1583, T1584, T1585, T1586, T1587, T1588, T1589, T1590, T1591, T1592, T1593, T1594, T1595, T1596, T1597, T1598, T1599, T1600, T1601, T1602, T1603, T1604, T1605, T1606, T1607, T1608, T1609, T1610, T1611, T1612, T1613, T1614, T1615, T1616, T1617, T1618, T1619, T1620, T1621, T1622, T1623, T1624, T1625, T1626, T1627, T1628, T1629, T1630, T1631, T1632, T1633, T1634, T1635, T1636, T1637, T1638, T1639, T1640, T1641, T1642, T1643, T1644, T1645, T1646, T1647, T1648, T1649, T1650, T1651, T1652, T1653, T1654, T1655, T1656, T1657, T1658, T1659, T1660, T1661, T1662, T1663, T1664, T1665, T1666, T1667, T1668, T1669, T1670, T1671, T1672, T1673, T1674, T1675, T1676, T1677, T1678, T1679, T1680, T1681, T1682, T1683, T1684, T1685, T1686, T1687, T1688, T1689, T1690, T1691, T1692, T1693, T1694, T1695, T1696, T1697, T1698, T1699, T1700, T1701, T1702, T1703, T1704, T1705, T1706, T1707, T1708, T1709, T1710, T1711, T1712, T1713, T1714, T1715, T1716, T1717, T1718, T1719, T1720, T1721, T1722, T1723, T1724, T1725, T1726, T1727, T1728, T1729, T1730, T1731, T1732, T1733, T1734, T1735, T1736, T1737, T1738, T1739, T1740, T1741, T1742, T1743, T1744, T1745, T1746, T1747, T1748, T1749, T1750, T1751, T1752, T1753, T1754, T1755, T1756, T1757, T1758, T1759, T1760, T1761, T1762, T1763, T1764, T1765, T1766, T1767, T1768, T1769, T1770, T1771, T1772, T1773, T1774, T1775, T1776, T1777, T1778, T1779, T1780, T1781, T1782, T1783, T1784, T1785, T1786, T1787, T1788, T1789, T1790, T1791, T1792, T1793, T1794, T1795, T1796, T1797, T1798, T1799, T1800, T1801, T1802, T1803, T1804, T1805, T1806, T1807, T1808, T1809, T1810, T1811, T1812, T1813, T1814, T1815, T1816, T1817, T1818, T1819, T1820, T1821, T1822, T1823, T1824, T1825, T1826, T1827, T1828, T1829, T1830, T1831, T1832, T1833, T1834, T1835, T1836, T1837, T1838, T1839, T1840, T1841, T1842, T1843, T1844, T1845, T1846, T1847, T1848, T1849, T1850, T1851, T1852, T1853, T1854, T1855, T1856, T1857, T1858, T1859, T1860, T1861, T1862, T1863, T1864, T1865, T1866, T1867, T1868, T1869, T1870, T1871, T1872, T1873, T1874, T1875, T1876, T1877, T1878, T1879, T1880, T1881, T1882, T1883, T1884, T1885, T1886, T1887, T1888, T1889, T1890, T1891, T1892, T1893, T1894, T1895, T1896, T1897, T1898, T1899, T1900, T1901, T1902, T1903, T1904, T1905, T1906, T1907, T1908, T1909, T1910, T1911, T1912, T1913, T1914, T1915, T1916, T1917, T1918, T1919, T1920, T1921, T1922, T1923, T1924, T1925, T1926, T1927, T1928, T1929, T1930, T1931, T1932, T1933, T1934, T1935, T1936, T1937, T1938, T1939, T1940, T1941, T1942, T1943, T1944, T1945, T1946, T1947, T1948, T1949, T1950, T1951, T1952, T1953, T1954, T1955, T1956, T1957, T1958, T1959, T1960, T1961, T1962, T1963, T1964, T1965, T1966, T1967, T1968, T1969, T1970, T1971, T1972, T1973, T1974, T1975, T1976, T1977, T1978, T1979, T1980, T



Help Wanted

Tech @ Boeing

www.boeing.com/employment

Twenty years from now we'll be putting families in space. What will you be doing? Apply online at www.boeing.com/employment or send resumes to The Boeing Company, PO BOX 3707, M/C 6N-PR, 003692 Seattle, WA 98124-2207. It is the policy of The Boeing Company to attract and retain the best qualified people available without regard to race, color, religion, national origin, gender, sexual orientation, age, disability, or status as a disabled or Vietnam-era veteran.

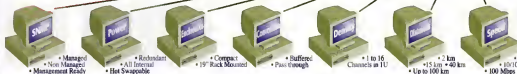
heavy righted material



FibroLAN now allows you to deploy management ready Media Converters at the cost of "dumb" devices

SNMP Media Converters- Why Decide Now?

Purchase and install the SNMP module later-when you really need it. The most comprehensive line of F/O Media Converters is available to help you find the optimal solution for your FiberOptic Connectivity.



• Managed
• Non Managed
• Management Ready

• Redundant
• All Internal
• Hot Swappable

• Compact
• 19" Rack Mounted

• Buffered
• Pass through

• 1 to 16
Channels in 1U

• 2 km
• 15 km • 40 km
Up to 100 km

• 10
• 10/100
• 100 Mbps



Contact us: Tel. 011-972-4959-1717, Fax. 011-972-4959-1718, Website: www.fibrolan.com, E-mail: info@fibrolan.com

#309 @ www.networkworld.com/infoexpress



Less is...

Manage all of your servers with just one keyboard, monitor and mouse! The AutoView Commander eliminates the need for peripherals at every computer. Fewer peripherals means less clutter and less wasted money.

MORE Room
MORE Control
MORE Cost-effective
What more could you want?

MORE



Cyber, the Cyber logo, AutoView and Commander are trademarks or registered trademarks of Cyber Computer Products Corporation.

Contact us at CYBEX (800) 932-9239,
fax (256) 430-4030 or

www.cybex.com



Come see us at NetWorld+Interop, Booth #7226

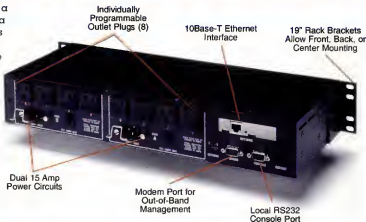
#227 @ www.networkworld.com/infoexpress

Remote Reboot Over Telnet!

Reboot your Network Equipment via Telnet, Dial-Up and Local Console

Network equipment sometimes "locks-up" requiring a service call just to flip the power switch to perform a simple reboot. The NPS Network Power Switch gives network administrators the ability to perform this function from anywhere on the LAN/WAN, or if the network is down, to simply dial-in from a standard external modem for out-of-band power control.

- ✓ TCP/IP Security
- ✓ Individual Plug Passwords
- ✓ Dual 15 Amp Power Inputs
- ✓ Eight (8) Individual Outlets
- ✓ Modem and Console Ports
- ✓ Co-Location Features
- ✓ 115-VAC and 230-VAC Models
- ✓ Modem and Telnet Auto Reset



wti western
telematic inc.

(800) 854-7226 • www.wti.com

5 Sterling • Irvine • California 92618-2517 • (949) 586-9950 • Fax: (949) 583-9514

#250 © www.networkworld.com/infoexpress

**AT HOME,
HOW YOU
SURF IS
YOUR
BUSINESS.**

**AT WORK
IT'S OURS.**

**Immediately
increase
productivity.**

**Monitor, report on, or
block all Internet access.**

LittleBrother™

"Little Brother is watching you use the Internet"

546 Valley Way Milpitas, CA 95035
P/c: 1.800.200.9851 Fax: 408.253.9803 sales@knomex.com

#256 © www.networkworld.com/infoexpress

SNMPC Enterprise Manager

Distributed management
for Windows NT. Supports
remote consoles and
polling agents, Web Trend
Reporting and more.

SNMPC WorkGroup Manager

Affordable management
for small networks.
With an installed base
of over 60,000 copies,
this popular tool is resold
by major OEMs, including
Cisco and ACC.

**Castle Rock
Computing**
Phone: 408.366.6540
Fax: 408.252.2379

Network Management for Microsoft Windows



Download a Free Evaluation
www.castlerock.com

#252 © www.networkworld.com/infoexpress



Can You Afford to Be Down?

- Can your web/e-commerce server afford downtime?
- Can your e-mail server afford downtime?

Minimize your downtime with BOOMRACK's dependable industrial grade rockmount chassis and power supply.

BOOMRACK, a complete rockmount and RAID solution provider, offers top quality products that are designed to exceed the limits of performance. In addition to providing the most innovative and reliable rockmount chassis and power supply systems, BOOMRACK offers unmatched marketing and support programs, including channel partnership programs and authorized service centers - all aimed to improve your bottom line.

BOOMRACK - exceeding server system needs for the next millennium.



Rockmount and RAID Solutions

www.boomrack.com



OBSERVER

INTRODUCING

LAN/WAN

TROUBLESHOOTING

AND PROTOCOL

ANALYSIS

SOFTWARE

SO OBSERVANT,

IT CAN SEE ALL

PORTS ON YOUR

SWITCH.

• Full packet capture and decode for over 300 protocols, including TCP/IP (v4 and v6), NetBIOS/NetBUE, IPX/SPX, AppleTalk, SNA, and DECnet.

• Switched mode sees all ports on a switch gathering statistics from the entire switch or packet capture from any port or ports. Finally a protocol analyzer that can be used in switched environments!

• Long-term network trending collects statistical baseline data for days, weeks, months or years for review and reporting.

• Distributed version available for \$1290 (includes 1 local and 1 remote Probe). Additional Probes are \$295 per local or remote segment or switch.

• Network Instruments' optimized ErrorTrack™ NDIS drivers display true errors-by-station. Includes collision expert to identify problem stations.

• Track router utilization/traffic in real time

• Ethernet (10/100/1000), Token Ring, FDDI

Observer identifies network trouble spots, and costs thousands less than expensive hardware-based analyzers. If you have network slowdown you know if they are being caused by packet errors, broadcast storms or overloaded utilization? Find out with Observer or Distributed Observer.

Observer's Extensions add to the functionality of Observer and Distributed Observer by providing SNMP object tracking, WEB browser based reporting, RMON/1/2 Probe monitoring and Expert mode post-capture analysis - all within the Observer interface. Network Instrument Probes are also available as RMON/1/2 Probes for \$295/each.



OBSERVER® 6

\$995



See what you have been missing! Call 800-525-7919 for a FREE DEMO or download from our web site.

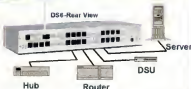
www.networkinstruments.com

© 1999 Network Instruments, LLC • Corporate Headquarters (912) 902-9999 FAX (912) 902-9948, UK and Europe +44 (0) 1252 303044 FAX +44 (0) 1252 303058
All other trademarks are the property of their respective owners. Observer, Network Instruments, and the "N" logo are registered trademarks of Network Instruments, LLC, Minneapolis, MN 55426.

©290 © www.networkworld.com/infoxpress

Out-of-Band Console Access Server "Trouble-shoot network problems from anywhere"

Access Remote
RS-232
Consoles with
One Phone
Line or
Ethernet
Connection



- Menu driven interface, unique naming for each device
- Modular design for easy expansion or changes
- Optional Ethernet (Telnet), Dial-up and local RS-232 access
- Internal 33.6 kbps modem with built-in lightning protection
- 3,6,9 slot units, 4-32 devices supported

BayTech's DS-Series Data Switch is modular in design. The basic unit, access modules and RS-232 I/O modules ordered determine the type of access you have and how many devices you can communicate with. The modular design also provides easy expansion, simply install another four port RS-232 I/O module and you have access to four additional devices.

Also available: **REBOOT LOCKED EQUIPMENT** with BayTech power control solutions



800-523-2702 www.baytechdcd.com
International: 228-467-8231 Fax: 228-467-4551

©292 © www.networkworld.com/infoxpress

ARTICLE REPRINTS

from

The authority of enterprise network access reprints
NetworkWorld

High impact article reprints from **NetworkWorld** can help your company in many ways:

- Reprints can increase **EXPOSURE** for your product or service.
- Reprints are unique and unbiased — they pack **CREDIBILITY**!
- Reprints make great **SALES** tools for trade shows, mailings, or media kits.

FOR MORE INFORMATION CALL:



Ray Tynovich
717.399.1900

1811 OLDE HOMESTEAD LANE
LANCASTER, PA 17601
FAX: 717.399.5900

website: <http://www.rmsreprints.com>
email: sales@rmsreprints.com



ASK FOR OUR 10% TRADE SHOW UPGRADE

MANAGE 1,000 SERVERS from 4 or more KVM stations



**Celebrating
our 15 Year
Anniversary**

Here has done it again! The UltraMatrix is a keyboard-video-mouse (KVM) switch that has all the features, is the simplest to use, and costs the least.

- Simultaneous access from 4 or more KVM stations
- Supports multiple platforms: PC, Sun, Unix, others
- Full keyboard and mouse emulation for automatic booting
- Expands easily with plug-in cards
- Sleek on-screen display simplifies user interface
- Innovative cabling system makes installation clean and easy
- Uses less rack space than other switches
- Security, access groups, user profiles, status screen, flash memory, and more

Rose has been providing innovative solutions since 1984. We have a complete line of KVM switches for server rooms, classrooms, desktops, and other uses. Ask us about our KVM extenders using coax or twisted pair. We also have an extensive line of serial and parallel data switches. Call us today to discuss your application.



**GROW WITH
ROSE PRODUCTS**



USA OFFICE: 10707 STANCLIFF ROAD HOUSTON, TEXAS 77098 PHONE 281-933-7873 FAX 281-933-0044
UK OFFICE: PHONE +44 (0) 1264 850574 FAX +44 (0) 1264 850528

Call 800-333-9343 for your catalog

**ROSE
ELECTRONICS**

WWW.ROSEL.COM

#235 @ www.networkworld.com/infoexpress

CISCO SYSTEMS
TRAINING
PARTNER
SOLUTIONS

get hands-on skills

from the quality leader
for network training and
consulting



Get vLab Now

To receive a schedule of our classes, arrange for on-site training or ask about our consulting services, call **800-447-6867**. Or check out our Web site at www.ccsi.com or send an e-mail to training@ccci.com. Whatever the network problem, you'll find the solutions at Chesapeake.

Chesapeake is the quality leader in Cisco training. An important reason for our success has been our ability to offer you the highest quality, customized training for your personal or corporate needs. Building on this heritage, Chesapeake is proud to announce that we now offer a revolutionary web-based training service: vLab™. Developed by MentorLabs, vLab provides online access to real Cisco gear and lab content written by networking experts. vLab is a perfect complement to Chesapeake's Instructor-Led Training and Consulting services, and allows us to offer you a more complete solution to your training needs. Contact Chesapeake at 1-800-447-5967 to discuss how we can best serve you.

CHESAPEAKE
Computer Consultants

www.ccsi.com

Visit our web site for the latest information on our training and consulting services.

#245 @ www.networkworld.com/infoexpress

Try it today at: www.networkworld.com/infoxpress

NetworkWorld InfoXpress is reader service at its best. An online service designed to furnish readers with a quick and easy way to request information, **NetworkWorld InfoXpress** offers readers:

- Easier access to more relevant information.
- The ability to search for information by reader service number, advertiser name or product category.
- 24-hour service.
- Flexibility in requesting information via mail, email, telephone, fax or linking to the advertiser web page.

Network World, Inc., 381 Worcester Road, Framingham, MA 01701 • (800)622-1108 • www.nwfusion.com



NetworkWorld
NET LEADER
IN NETWORK
KNOWLEDGE
Real. Reliable. Relevant.
AND EASY TO USE.

ADVERTISING

Bringing Unix to Windows Desktops

X-Win32
For Windows 95/98
STARNET
24-hour service

Visit us at www.starnet.com
Download Free Demo from:
<ftp://ftp.starnet.com/secure/win32/>

UNIX Support
Access Security
Multiple Monitors
Mouse Wheel Support
Cut/Paste to Windows Apps

8225 • www.networkworld.com/infoxpress

nsdata.com
specialists in
Year 2000
telex and X.25
solutions worldwide

1.800.270.2669 301.662.5901
www.nsdata.com

8237 • www.networkworld.com/infoxpress

Livingston Ascend US Robotics Microm

CISCO, BAY NETWORKS, CABLETRON

Specialist in all Cisco products including: Money LAN/WAN Products New, Used, Lease, Rent Cables Xylogics Wireless

3Com Adtran Motorola

Millennium Solutions Group, Inc.

• Routers, Bridges • Frame Relay • Hubs, Modems • Switches, ATM • Voice over Data

We Buy and Sell 888-801-2001 Fax: (916) 630-2000 Visit our Web Site at <http://www.millenniumsolutions.com>

8283 • www.networkworld.com/infoxpress

A Network World Special Issue
Issue Date: September 27 Ad Close: September 15

What's the BUZZ? Network World takes an insider's look at what's behind the BUZZ in the network industry. This special issue is sure to create a "BUZZ" of its own. Don't miss out on this great opportunity to make your company part of all the networking BUZZ...

In This Special Issue...

- **Convergence divergence**
What it's going to cost and what you're going to get will help you make the convergence call.
- **Unending drone**
There's no end to the buzz in this biz. Here's a quick look at 10 more topics working their way through the cycle of hype.
- **Counterintelligence report**
Intrusion-detection software is hot, but can it really stop hackers cold?
- **Linux casting call**
Let's take a look at one of the most critical of corporate apps today — e-commerce — and see if this operating system can handle the performance.
- **Spin control**
These days, network-related tidbits filter into a company from daily newspapers, weekly and monthly business publications and even prime-time TV. Here are five tips for managing the buzz.
- **The vaulted VPN**
Virtual private networks remain one of the buzziest concepts around, but are they all that vendors have professed they'd be? Here's a look at what you can and cannot do with a VPN today.
- **Signature Sign-off**
Humorous essay on the ultimate 1999 buzz — Y2K.

Call your sales representative today for more information on how you can be part of The Buzz!

Tel: 800-622-1108 ext. 7507 • Fax: 508-628-3976
email: directresponse@nw.com

USED CISCO DIRECT
1-888-89-CISCO

NETFAST
Save up to 80% on new/used:
• Routers • Switches • XDSL • T1 CSU/DSUs
• ATM • Fast Ethernet • ISDN • Frame Relay

Cisco Systems
WE BUY USED

• Cisco • Lucent/Ascend • Nortel/Bay Networks • ADC Networks • Xylogics
• Ascend • 3COM/USRobotics • Lancom • Cabletron • Newbridge • J-Net
• Proximus • Digital Link • Fore • Motorola • Network Assoc. • ISI

Netfast Communications Inc., 56-29 56th Drive, Maspeth, NY 11378 USA
Phone: 1-888-892-4726 or 718-894-7500 Fax: 718-894-1573

8259 • www.networkworld.com/infoxpress

For details on how to put your ad here

Enku Gubala
1-800-622-1108

LAN/WAN • BUY/SELL
MODEMS FULLY WARRANTED
DSU/CSU NEW/REFURBISHED
T-1 EQUIPMENT RENTAL
SWITCHES, HUBS, LEASE
HUB, BRIDGES, ROUTERS, ETC.

Cabletron Bay Networks
CISCO SPECIALISTS

3Com Microm Adtran H/P
We carry all manufacturers call ask for sales

<http://www.adcs-inc.com>
PHONE 800-783-8979
FAX (916) 781-6962

ADCS INC.

8248 • www.networkworld.com/infoxpress

Heat, continued from page 1

Server outages that may have happened three years ago are avoided today because of careful planning, Fortwenger says.

"It's 105 in Las Vegas today," he adds. "If we didn't pay attention to temperature, we'd know about it immediately."

Most IT managers plan for hot days and unexpected weather conditions, but when the heat index hits 115 degrees as it did in Lexington, Ky., earlier this month, surprises will happen. One network professional there, who requests anonymity, began to break out in a sweat — literally and figuratively.

"The temperature in our server room reached 80 degrees at 2:30 p.m., and the only chance we had to keep cool air inside was not to go in and out of the room except when absolutely necessary," he

recalls. "We hoped if we could limit by for a few hours, things would take care of themselves that evening."

"They did. And he is fortunate in another way, too, as his company is moving to a new building next month where air conditioning with dedicated ductwork has been installed to his specifications. Which speaks to another issue: Despite all the accommodations there are IT executives make for weather, there are times when they are at the mercy of the other factors — most commonly, the property manager."

"In our leased space, we don't have any control over the air conditioning in the building," says Kevin Beattie, director of corporate information services at Nordson Corp. in Westlake, Ohio. "We did have a situation where the sole air-conditioning [unit] in the building stopped over the July 4th weekend." When staff came back after the extended

weekend, the temperatures were unacceptable high.

Although the servers were equipped with sensors that shut them down automatically, if the data running on the servers had been for production systems instead of research, "it would have been unsatisfactory," Beattie says. "We would have taken other precautions," he adds.

Network executives report mixed results in haggling with landlords for cooler conditions during lease negotiations. As for the property managers, they say the success of such energy negotiations depends on the company's size, the amount of space it is leasing and the length of its contract.

Trammell Crow, one of the largest commercial real estate services companies in the U.S., rents space to a number of high-tech businesses in Austin, Texas, including eight separate Tivoli locations. Tivoli's offices are cooled on weekdays and from 7 a.m. to 1 p.m. on Saturdays as part of the company's standard lease. For evenings, overnights and rest

of the weekend, Tivoli pays extra to have its server rooms air-conditioned. Servers outside those rooms remain vulnerable to rising nighttime temperatures.

Most property management firms are beginning to recognize high-tech needs and the costs associated with fulfilling

work consultant with Proactive Network Management in Salt Lake City, has seen networks in companies that don't have dedicated air conditioning. He's developed some innovative and relatively low-tech, low-cost approaches to cooling his customers' com-



Tips for extra server room cooling

- Install fans to circulate air.
- Vent doors to provide for cross-circulation.
- Use portable coolers, such as those from Liebert or MuntzCool, to reduce temperatures.
- Allow proper airflow around servers.
- Make server room temperature control part of a disaster recovery plan.



MuntzCool Office is a portable air conditioner that can be programmed to operate when temperatures rise.

them. The Building Owners and Managers Association says corporate facilities with computer rooms or data centers have utility expenses 31% higher than those without the features.

Mickey Applebaum, a net-

puter rooms. Applebaum has gone as far as placing banks of fans inches away from servers to cool them down.

"In most cases, the problem is not that the room is not cold enough, it's that there is no air movement," he says.

Vendors offer some help and advice. Compaq, Dell and Hewlett-Packard have thermal sensors in their servers, which can be monitored by software and shut down in an orderly fashion if heat problems occur.

Compaq subjects its servers to combined temperature/elevation tests to pinpoint their performance. Hewlett-Packard has laboratories where servers are designed to withstand sudden shifts in temperature.

Planning, haggling and perseverance may be important aspects of keeping gear cool during the dead of summer. But sometimes there is no substitute for plain old good fortune.

"Our server room situation worked out pretty easily," says David Jackson, director of corporate systems for MobilStar, a broadband and remote communications company for business travelers in Dallas. "We leased space that was previously occupied by a company that had mainframes. All our servers are located in that room and our temperatures stay constant at 68 degrees."

Now that's cool. ■

Support, continued from page 1

Dell rolled out iSupport — Direct from Dell, which includes software that lets users troubleshoot and repair systems and applications problems on their computers.

Dell's software, dubbed OpenManage: Resolution Assistant, will initially work on non-clustered PowerEdge servers, and eventually on Dell desktop computers. Dell purchased the software and user licenses from Motive Communications, a sup-

ply chain automation company. The software lets an organization staff an online help desk, tie in product support knowledge bases specific to its products and distribute troubleshooting software to its customers.

PeopleSoft will announce this week that it will provide customers with similar software to troubleshoot and resolve software problems. Compaq is expected to announce next quarter that it will use Motive's software to automate troubleshooting in desktop PCs and ProLiant servers, according

Scott Harmon, CEO of Motive. Compaq declined to comment.

One corporate customer finds the Dell offerings are a useful tool for remote monitoring.

"We are a Dell shop with 16 PowerEdge servers, three in Waco, the remainder in Austin, Texas," says Paul Michaels, a network administrator for ClearSource, a broadband Internet company. "When the Resolution Assistant software detects a problem, it automatically sends an e-mail to Dell technical support, so Dell can fix it."

"Without the software, I would have to drive back and forth from Austin to Waco to manage the equipment," Michaels adds. "Plus the software is always proactively monitoring the equipment and advising me of potential problems before they occur."

The client component can solve almost 30% of the typical problems a user has without the intervention of customer support personnel, Motive claims.

With a printing problem, for example, the software automatically identifies and isolates the problem, narrows down the possible causes, and then tests fixes until the problem is resolved.

The software can reduce the amount of time users spend on

calling tech support by identifying the network customers and their configurations, and then proceeding with any initial troubleshooting that can be done automatically.

Dell will also sell Motive's Duet software to companies that want to set up their own help desks. According to Motive, Duet starts at \$165,000.

PeopleSoft starts a bright future for e-support products.

"As the level of customer confidence grows in e-support products, we will begin to use the unattended service to automatically fix customer software," says Jim Johnson, e-support project manager at PeopleSoft. The company, an application provider for human resource management and other operation software, has implemented Motive Duet and combined it with a static support knowledgebase to make diagnosis more comprehensive.

OpenManage Resolution Assistant ships with all new Dell PowerEdge servers or can be downloaded free from www.dell.com/openmanage or reststore.hjrn. ■

Get more info online.
DoeFinder: 4434
www.nwfusion.com

Get more info online.
DoeFinder: 4436
www.nwfusion.com

Newest Model: 301 Worcester Road, Framingham, Mass. 01701-9172, 508-675-6460.

Periodicals postage paid at Framingham, Mass., and additional mailing offices. Postage paid at Cambridge International Periodicals Agreement (CIPAA). NEWEST MODEL 01701-9172 is published weekly, except for a single combined issue for the last week in December and the first week in January by Newswatch, Inc., 301 Worcester Road, Framingham, Mass. 01701-9172.

Newswatch Inc. is distributed free of charge in the U.S. to qualified management or professionals.

To apply for a free subscription, complete and sign a qualification card or fill out a form in Newswatch Model at the address below. The subscription accepted without complete identification of subscriber's name, full address, company or organization. Based on the information supplied, the publisher reserves the right to reject non-qualified requests. Subscriptions: 1-800-525-1444.

Nonqualified subscriptions: \$5.00 a copy, U.S. \$10 a copy, Canada \$15.00 including 7% GST, \$15.00 (GST), Central & South America \$10 a copy, Europe \$15 a copy, Japan \$20 a copy, Australia \$20 a copy, all other countries \$20 a copy (airmail service). Four weeks free is required for change of address. Allow six weeks for new subscription service to begin.

Please include mailing label from front cover of the publication.

Newswatch Model can be purchased on 360 microfilm through University Microfilms Int., Periodicals Entry, 300 Zeeb Road, Ann Arbor, Mich. 48106. PHOTO COURTESY: Panasonic to photocopy for internal or personal use, or the internal or personal use of specific clients, is authorized by Newswatch Model for libraries and other users registered with the Copyright Clearance Center (CCC), provided that the base fee of \$2.00 per copy of the article, plus 50 cents per page is paid to Copyright Clearance Center, 27 Congress Street, Salem, Mass. 01970. POSTMASTER: Send Change of Address to Newswatch Model, P.O. Box 300, Northbrook, IL 60062.



Copyright 1999 by Newest Model Inc. All rights reserved. Reproduction of material appearing in Newest Model is prohibited without written permission.

Reprints (minimum 100 copies) and permission to reprint may be purchased from Reprint Management Services, Inc., 300 North Zeeb Road, Suite 101, Northbrook, Ill. 60062. Fax: (714) 399-8800. E-mail: reprints@rmsonline.com. USPS-75-702.

Crazy theories and equivalent values

"We all agree that your theory is crazy; but is it crazy enough?"

— Niels Bohr, physicist (1885-1962)

Last week I discussed the Chuetrain Manifesto (www.chuetrain.com), a somewhat crazy polemic on how corporations don't understand the nature of interacting with people online. And I suggested that in their theorizing, the authors had missed a bigger and far more important issue: the concept of the exchange of equivalent value.

I ended the column with the hope that the authors wouldn't assassinate me, and we can conclude from the fact that they're reading this that no attempts have been made. Yet.

Since then I've had messages from two of the perpetrators, Chris "Rageboy" Locke and David Weinberger, who have both very politely disagreed with me. Interestingly, the perps have a hot publishing deal

and *Chuetrain the Book* will be published in the new year. I will await the miniseries and film that will surely follow. But I digress...

Now I must confess that I did not come up with the concept of the exchange of equivalent value. I first heard the term used by Arnold Seigel, a remarkable philosopher, and I have borrowed and interpreted it — I hope not too liberally.

The idea is that if a transaction between entities (person to person, corporation to corporation, person to corporation or vice versa) is to be satisfactory to both parties, it must be the result of both parties giving and receiving something of value. But most importantly, the things given and received must be perceived as having equivalent value.

For example, I give you my money and you give me a piece of application software. If when I use the software, it doesn't do what I was led to believe it would or it

has too many bugs, then I will feel that it was not a good deal — that my money and your software aren't of equivalent value.

As with all human affairs, there's usually no absolute standard for what is acceptable. Too many bugs to someone else may be acceptable stability to me. For example, let us consider Windows 98... no, let's not.

And as long as I'm happy with the exchange of value, as long as I perceive equivalence, then I'm happy about the transaction and I'll be willing to consider future transactions with you.

While the principle of exchange of equivalent value is obvious, many people and organizations just don't consider it, so all over the Internet the principle is being violated.

Last October I discussed NetZero (NYC, Oct. 19, 1998, page 140). If you want NetZero's service, the firm will ask you for a demographic profile, use your time to install its software, use your disk space, use your processing time to run its software, use your screen real estate to display ads (how NetZero makes its money), and require your attention and interaction with the ads.

In exchange for these very valuable items from you, the company provides you with free Internet access worth roughly \$19.95. Is this an exchange of equivalent value? From NetZero's viewpoint it would appear to be, as it is still in business and for a proportion of its users, the same holds true. But go to the newsgroups and e-mail lists, and you'll find an equal number of people who don't think so.

NetZero is a simple case, but a similar analysis of value exchange can be performed for banner ads, electronic newsletters, portals and vendor Web sites. The successes in all categories offer value that is equivalent to whatever the user supplies in some combination of money, attention and time.

If you want to get a clue, pay attention to the exchange of equivalent value and ignore the crazy theories.

*Theoretical value to me
column@tgbbs.com*

Next time Melinda Gates can't come up with the perfect gift idea for her man Bill (what a nightmare man that would be), she should consider buying him some disappearing ink.

Meke that Disappearing Ink, a San Francisco-based Internet start-up that, had it been part of the Gates collection several years back, just might have spared the Microsoft chairman a spanking from the Department of Justice.

"We make e-mail go away, under the user's control," says Meclen Mervit, CEO of Disappearing, whose investors include Compaq Chairman Ben Rosen, Angel investors LLP and Red Rock Ventures. The e-mail that Mervit's firm "erases" can be any a customer might wish to have disappear, but generally the target is loose-spending business chatter of the type that increasingly loses lawsuits or puts the world's richest man on the witness stand.

"We can make those e-mails expire off your machine, my machine, and all the machines in the middle; the backup tapes, the CDs, all that stuff," Mervit says. "We use encryption in such a way that the message becomes shredded over time."

Details are being guarded at this point, Mervit says, but the essence of Disappearing is that the company will control one of the keys necessary to read an encrypted e-mail message. After a period of time kept by the sender or the sender's employer, that key will be destroyed, rendering all copies of the message an unreadable "pile of bits." Even the sender and Disappearing will be unable to resurrect the message once its time has run out. (You can bet the lawyers will contest that point: "What do you MEAN they can't get it back?")

The system will work with leading e-mail products such as Microsoft Exchange and Outlook, Lotus Notes and Domino, and Sendmail. Disappearing expects to begin beta testing in the fourth quarter and will launch in the first quarter.

Will recipients know that the e-mail they just received carries an expiration date? "That, too, is up to the [sender and/or company policy]," Mervit says. "They can choose to allow you to know or not, but in general, we think that people will know."

One would think so, given that the alternative — erasing a mail from a person's in-box without his knowledge — would almost certainly be considered rude, even in the cut-throat business world.

What about any paper copies that might be made? "If I send you an e-mail and you print it, that is what we refer to as the 'saboteur problem,'" Mervit acknowledges. "It is important to understand what problem we solve and what problem we don't solve. We don't prevent people from photographing the screen, and we don't prevent them from printing e-mails."

But the fact that the system isn't foolproof — or idiot-proof — doesn't mean that it won't become a valuable business tool.

"This isn't about being adversarial," says Mervit's brother Dave, a Disappearing co-founder. "It's about people who want to communicate with each other privately and not have to worry that someone hence Ken Starr is going to come along and ask for all the records."

So that gift suggestion goes for you, too, Hilary.

As if Web-enabled refrigerators wasn't a silly enough idea, along comes BP Amoco with a plan to give motorists Internet access at the gas pump. Its employees won't check your oil anymore without a court order, but BP apparently believes the motoring public is just itching to linger at their neighborhood petrol stations checking online traffic and weather reports.

Don't know about you, but Buzz wishes these fellows would make up their minds about what they want to do. They should give us the pay-at-the-pump systems designed to speed customers in and out.

Now they want us to hang around and browse the Web?

You can prime the 'Net Buzz pump by contacting McNamara at (508) 820-7471 or buzz@mcnamara.com



MARK
GIBBS



PAUL
MCNAMARA

Everything you've been
promised about a converged network,
today becomes reality.



Nortel Networks™ introduces the Internet Communications Architecture (Inca™) Portfolio. Finally, you can bring voice and data networks together into one fluid operation without starting all over. With the Inca portfolio of products, you can now combine your existing networks into one Unified Network without losing reliability or walking away from your existing network investment. That's because Inca is an IP architecture based on open standards. So whatever you need - from the Inca Mi that integrates telephony applications onto existing IP networks to the Inca Mio which provides the foundation for a seamless converged Internet telephony network from scratch - Nortel Networks has the answer. To learn more information, visit www.nortelnetworks.com/16IU

**NORTEL
NETWORKS™**
How the world shares ideas.

Nortel Networks, Unified Networks, Inca, the Nortel Networks logo, the Circlemark and "How the world shares ideas" are trademarks of Nortel Networks. © 1999 Nortel Networks. All rights reserved.

Free Product info enter NWInfoXpress #B2 online @ www.networkworld.com/infoXpress

PLEASE HELP FIND OUR CUSTOMER!!



LAST SEEN TRYING TO
COMPLETE A WEB
TRANSACTION. OUR
INFORMATION WAS
UNAVAILABLE AND WE
HAVEN'T SEEN HIM SINCE.

ANSWERS TO THE NAME
"WILSON"

CALL
ACME INC.
555-4253

In today's world, the information has to be there. If it's unavailable for even a moment, you'll lose customers. VERITAS® software ensures you have the highest level of information availability possible. So instead of losing customers, your business can keep winning new ones. Call 1-800-729-7894 x: 81016, surf www.veritas.com, or start making those flyers.

BUSINESS WITHOUT INTERRUPTION™


VERITAS